

|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                             |                                                                                     |                                               |                                                                                       |                           |                    |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------|---------------------------------------------------------------------------------------|---------------------------|--------------------|--|
| <b>Prüfbericht-Nr.:</b><br>Test report no.:                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>CN24D2RM 006</b>                                                                                                                                                         | <b>Auftrags-Nr.:</b><br>Order no.:                                                  | <b>P02401316</b>                              | Seite 1 von 23<br>Page 1 of 23                                                        |                           |                    |  |
| <b>Kunden-Referenz-Nr.:</b><br>Client reference no.:                                                                                                                                                                                                                                                                                                                                                                                                          | N/A                                                                                                                                                                         | <b>Auftragsdatum:</b><br>Order date:                                                | 2026-04-20                                    |                                                                                       |                           |                    |  |
| <b>Auftraggeber:</b><br>Client:                                                                                                                                                                                                                                                                                                                                                                                                                               | LEEDARSON IOT TECHNOLOGY (THAILAND) CO.,LTD.<br>No. 71 Moo.5 Wellgrow Industrial Estate, BangSamak Sub district, Bang Pakong District, Chachoengsao Province 24130 Thailand |                                                                                     |                                               |                                                                                       |                           |                    |  |
| <b>Prüfgegenstand:</b><br>Test item:                                                                                                                                                                                                                                                                                                                                                                                                                          | LED bulb                                                                                                                                                                    |                                                                                     |                                               |                                                                                       |                           |                    |  |
| <b>Bezeichnung / Typ-Nr.:</b><br>Identification / Type no.:                                                                                                                                                                                                                                                                                                                                                                                                   | 13aSB-A806ST-Q1T_JP, 15aSB-A800ST-Q1T_JP,<br>15aSB-A800ST-Q1T_JP-xP                                                                                                         |                                                                                     |                                               |                                                                                       |                           |                    |  |
| <b>Auftrags-Inhalt:</b><br>Order content:                                                                                                                                                                                                                                                                                                                                                                                                                     | Test Report                                                                                                                                                                 |                                                                                     |                                               |                                                                                       |                           |                    |  |
| <b>Prüfgrundlage:</b><br>Test specification:                                                                                                                                                                                                                                                                                                                                                                                                                  | Article 2 Section 1 Item 19                                                                                                                                                 |                                                                                     |                                               |                                                                                       |                           |                    |  |
| <b>Wareneingangsdatum:</b><br>Date of sample receipt:                                                                                                                                                                                                                                                                                                                                                                                                         | 2024-05-27                                                                                                                                                                  |  |                                               |                                                                                       |                           |                    |  |
| <b>Prüfmuster-Nr.:</b><br>Test sample no.:                                                                                                                                                                                                                                                                                                                                                                                                                    | A003722677-001                                                                                                                                                              |                                                                                     |                                               |                                                                                       |                           |                    |  |
| <b>Prüfzeitraum:</b><br>Testing period:                                                                                                                                                                                                                                                                                                                                                                                                                       | 2024-06-06 - 2024-07-01                                                                                                                                                     |                                                                                     |                                               |                                                                                       |                           |                    |  |
| <b>Ort der Prüfung:</b><br>Place of testing:                                                                                                                                                                                                                                                                                                                                                                                                                  | TÜV Rheinland<br>(Shenzhen) Co., Ltd.                                                                                                                                       |                                                                                     |                                               |                                                                                       |                           |                    |  |
| <b>Prüflaboratorium:</b><br>Testing laboratory:                                                                                                                                                                                                                                                                                                                                                                                                               | TÜV Rheinland<br>(Shenzhen) Co., Ltd.                                                                                                                                       |                                                                                     |                                               |                                                                                       |                           |                    |  |
| <b>Prüfergebnis*:</b><br>Test result*:                                                                                                                                                                                                                                                                                                                                                                                                                        | Pass                                                                                                                                                                        |                                                                                     |                                               |                                                                                       |                           |                    |  |
| <b>geprüft von:</b><br>tested by:                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                          |                                                                                     | <b>genehmigt von:</b><br>authorized by:       |  |                           |                    |  |
| <b>Datum:</b><br>Date:                                                                                                                                                                                                                                                                                                                                                                                                                                        | 2026-05-12                                                                                                                                                                  | Signed by: Jonathan Li                                                              |                                               | <b>Ausstellungsdatum:</b><br>Issue date:                                              | 2026-05-12                | Signed by: Bell Hu |  |
| <b>Stellung / Position:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                   | Sachverständige(r)/Expert                                                                                                                                                   |                                                                                     |                                               | <b>Stellung / Position:</b>                                                           | Sachverständige(r)/Expert |                    |  |
| <b>Sonstiges /</b><br><b>Other:</b>                                                                                                                                                                                                                                                                                                                                                                                                                           | This report is for 2.4GHz Wi-Fi.                                                                                                                                            |                                                                                     |                                               |                                                                                       |                           |                    |  |
| <b>Zustand des Prüfgegenstandes bei Anlieferung:</b><br>Condition of the test item at delivery:                                                                                                                                                                                                                                                                                                                                                               | Prüfmuster vollständig und unbeschädigt<br>Test item complete and undamaged                                                                                                 |                                                                                     |                                               |                                                                                       |                           |                    |  |
| * Legende:                                                                                                                                                                                                                                                                                                                                                                                                                                                    | P(ass) = entspricht o.g. Prüfgrundlage(n)<br>F(ail) = entspricht nicht o.g. Prüfgrundlage(n)                                                                                |                                                                                     | N/A = nicht anwendbar<br>N/T = nicht getestet |                                                                                       |                           |                    |  |
| * Legend:                                                                                                                                                                                                                                                                                                                                                                                                                                                     | P(ass) = passed a.m. test specification(s)<br>F(ail) = failed a.m. test specification(s)                                                                                    |                                                                                     | N/A = not applicable<br>N/T = not tested      |                                                                                       |                           |                    |  |
| <b>Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.</b><br>This test report only relates to the above mentioned test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark. |                                                                                                                                                                             |                                                                                     |                                               |                                                                                       |                           |                    |  |

Prüfbericht-Nr.: CN24D2RM 006  
Test report no.:

Seite 2 von 23  
Page 2 of 23

**Anmerkungen**  
**Remarks**

- |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1</b> | <p>Alle eingesetzten Prüfmittel waren zum angegebenen Prüfzeitraum gemäß eines festgelegten Kalibrierungsprogramms unseres Prüfhauses kalibriert. Sie entsprechen den in den Prüfprogrammen hinterlegten Anforderungen. Die Rückverfolgbarkeit der eingesetzten Prüfmittel ist durch die Einhaltung der Regelungen unseres Managementsystems gegeben.</p> <p>Detaillierte Informationen bezüglich Prüfkonditionen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden.</p> <p><i>The equipment used during the specified testing period was calibrated according to our test laboratory calibration program. The equipment fulfils the requirements included in the relevant standards. The traceability of the test equipment used is ensured by compliance with the regulations of our management system. Detailed information regarding test conditions, equipment and measurement uncertainty is available in the test laboratory and could be provided on request.</i></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>2</b> | <p>Wie vertraglich vereinbart, wurde dieses Dokument nur digital unterzeichnet. Der TÜV Rheinland hat nicht überprüft, welche rechtlichen oder sonstigen diesbezüglichen Anforderungen für dieses Dokument gelten. Diese Überprüfung liegt in der Verantwortung des Benutzers dieses Dokuments. Auf Verlangen des Kunden kann der TÜV Rheinland die Gültigkeit der digitalen Signatur durch ein gesondertes Dokument bestätigen. Diese Anfrage ist an unseren Vertrieb zu richten. Eine Umweltgebühr für einen solchen zusätzlichen Service wird erhoben. Informationen zur Verifizierung der Authentizität unserer Dokumente erhalten Sie auf folgender Webseite: <a href="http://go.tuv.com/digital-signature">go.tuv.com/digital-signature</a></p> <p><i>As contractually agreed, this document has been signed digitally only. TUV Rheinland has not verified and unable to verify which legal or other pertaining requirements are applicable for this document. Such verification is within the responsibility of the user of this document. Upon request by its client, TUV Rheinland can confirm the validity of the digital signature by a separate document. Such request shall be addressed to our Sales department. An environmental fee for such additional service will be charged. For information on verifying the authenticity of our documents, please visit the following website: <a href="http://go.tuv.com/digital-signature">go.tuv.com/digital-signature</a></i></p> |
| <b>3</b> | <p>Prüfklausel mit der Note * wurden an qualifizierte Unterauftragnehmer vergeben und sind unter der jeweiligen Prüfklausel des Berichts beschrieben.</p> <p>Abweichungen von Prüfspezifikation(en) oder Kundenanforderungen sind in der jeweiligen Prüfklausel im Bericht aufgeführt.</p> <p><i>Test clauses with remark of * are subcontracted to qualified subcontractors and described under the respective test clause in the report.</i></p> <p><i>Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report.</i></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>4</b> | <p>Die Entscheidungsregel für Konformitätserklärungen basierend auf numerischen Messergebnissen in diesem Prüfbericht basiert auf der "Null-Grenzwert-Regel" und der "Einfachen Akzeptanz" gemäß ILAC G8:2019 und IEC Guide 115:2021, es sei denn, in der auf Seite 1 dieses Berichts genannten angewandten Norm ist etwas anderes festgelegt oder vom Kunden gewünscht. Dies bedeutet, dass die Messunsicherheit nicht berücksichtigt wird und daher auch nicht im Prüfbericht angegeben wird. Zu weiteren Informationen bezüglich des Risikos durch diese Entscheidungsregel siehe ILAC G8:2019.</p> <p><i>The decision rule for statements of conformity, based on numerical measurement results, in this test report is based on the "Zero Guard Band Rule" and "Simple Acceptance" in accordance with ILAC G8:2019 and IEC Guide 115:2021, unless otherwise specified in the applied standard mentioned on Page 1 of this report or requested by the customer. This means that measurement uncertainty is not taken in account and hence also not declared in the test report. For additional information to the resulting risk based of this decision rule please refer to ILAC G8:2019.</i></p>                                                                                                                                                                                                                                                                                       |

**Prüfbericht - Nr.: CN24D2RM 006**  
Test Report No.:

Seite 3 von 23  
Page 3 of 23

## Contents

|            |                                                                   |           |
|------------|-------------------------------------------------------------------|-----------|
| <b>1</b>   | <b>GENERAL REMARKS .....</b>                                      | <b>5</b>  |
| <b>1.1</b> | <b>COMPLEMENTARY MATERIALS.....</b>                               | <b>5</b>  |
| <b>2</b>   | <b>TEST SITES.....</b>                                            | <b>6</b>  |
| <b>2.1</b> | <b>TEST FACILITIES .....</b>                                      | <b>6</b>  |
| <b>2.2</b> | <b>LIST OF TEST AND MEASUREMENT INSTRUMENTS .....</b>             | <b>6</b>  |
| <b>2.3</b> | <b>UNCERTAINTY OF MEASUREMENT .....</b>                           | <b>6</b>  |
| <b>3</b>   | <b>GENERAL PRODUCT INFORMATION .....</b>                          | <b>7</b>  |
| <b>3.1</b> | <b>PRODUCT FUNCTION AND INTENDED USE .....</b>                    | <b>7</b>  |
| <b>3.2</b> | <b>RATINGS AND SYSTEM DETAILS.....</b>                            | <b>7</b>  |
| <b>3.3</b> | <b>ANTENNA SPECIFICATIONS.....</b>                                | <b>8</b>  |
| 3.3.1      | Antenna Gain.....                                                 | 8         |
| 3.3.2      | Antenna Pattern.....                                              | 8         |
| <b>3.4</b> | <b>NOISE GENERATING AND NOISE SUPPRESSING PARTS .....</b>         | <b>8</b>  |
| <b>3.5</b> | <b>SUBMITTED DOCUMENTS.....</b>                                   | <b>8</b>  |
| <b>4</b>   | <b>TEST SET-UP AND OPERATION MODES.....</b>                       | <b>9</b>  |
| <b>4.1</b> | <b>PRINCIPLE OF CONFIGURATION SELECTION .....</b>                 | <b>9</b>  |
| <b>4.2</b> | <b>TEST OPERATION AND TEST SOFTWARE .....</b>                     | <b>9</b>  |
| <b>4.3</b> | <b>SPECIAL ACCESSORIES AND AUXILIARY EQUIPMENT .....</b>          | <b>9</b>  |
| <b>4.4</b> | <b>COUNTERMEASURES TO ACHIEVE EMC COMPLIANCE .....</b>            | <b>9</b>  |
| <b>5</b>   | <b>TEST RESULTS .....</b>                                         | <b>10</b> |
| <b>5.1</b> | <b>FREQUENCY TOLERANCE MEASUREMENT .....</b>                      | <b>10</b> |
| 5.1.1      | Limits of Frequency Tolerance Measurement.....                    | 10        |
| 5.1.2      | Test Setup .....                                                  | 10        |
| 5.1.3      | Condition of Measuring Instrument.....                            | 10        |
| 5.1.4      | Condition of Test Equipment .....                                 | 10        |
| 5.1.5      | Measurement procedure .....                                       | 10        |
| 5.1.6      | Test Results.....                                                 | 10        |
| <b>5.2</b> | <b>OCCUPIED BANDWIDTH MEASUREMENT (99% POWER BANDWIDTH) .....</b> | <b>11</b> |
| 5.2.1      | Limits of Occupied Bandwidth Measurement .....                    | 11        |
| 5.2.2      | Test Setup .....                                                  | 11        |
| 5.2.3      | Measuring Instrument Conditions.....                              | 11        |
| 5.2.4      | Test Results.....                                                 | 11        |
| <b>5.3</b> | <b>SPREADING BANDWIDTH MEASUREMENT (90% POWER BANDWIDTH).....</b> | <b>12</b> |
| 5.3.1      | Limits of Spreading Bandwidth and Spreading Factor .....          | 12        |
| 5.3.2      | Test Setup .....                                                  | 12        |
| 5.3.3      | Measuring Instrument Conditions.....                              | 12        |
| 5.3.4      | Test Results.....                                                 | 12        |
| <b>5.4</b> | <b>SPURIOUS EMISSIONS FOR TRANSMITTER MEASUREMENT .....</b>       | <b>13</b> |
| 5.4.1      | Limits of Spurious Emissions.....                                 | 13        |
| 5.4.2      | Test Setup .....                                                  | 13        |
| 5.4.3      | Conditions of The Measuring Instrument.....                       | 13        |
| 5.4.4      | Others.....                                                       | 13        |

**Prüfbericht - Nr.: CN24D2RM 006**  
Test Report No.:

Seite 4 von 23  
Page 4 of 23

|            |                                                  |           |
|------------|--------------------------------------------------|-----------|
| 5.4.5      | Conditions of the measuring instrument .....     | 14        |
| 5.4.6      | Test Results .....                               | 14        |
| <b>5.5</b> | <b>ANTENNA POWER MEASUREMENT .....</b>           | <b>15</b> |
| 5.5.1      | Limits of Antenna Power .....                    | 15        |
| 5.5.2      | Test Setup .....                                 | 15        |
| 5.5.3      | Condition of Measuring Instrument .....          | 15        |
| 5.5.4      | Condition of Test Equipment .....                | 16        |
| 5.5.5      | Measurement Procedure .....                      | 16        |
| 5.5.6      | Test Results .....                               | 17        |
| <b>5.6</b> | <b>SPURIOUS EMISSIONS FOR RECEIVER .....</b>     | <b>18</b> |
| 5.6.1      | Limits of Spurious Emissions for Receiver .....  | 18        |
| 5.6.2      | Test Setup .....                                 | 18        |
| 5.6.3      | Measurement Procedure .....                      | 18        |
| 5.6.4      | Test Results .....                               | 18        |
| <b>5.7</b> | <b>INTERFERENCE PREVENTION FUNCTION .....</b>    | <b>19</b> |
| 5.7.1      | Limits of Interference Prevention Function ..... | 19        |
| 5.7.2      | Test Setup .....                                 | 19        |
| 5.7.3      | Condition of Measuring Instrument .....          | 19        |
| 5.7.4      | Measurement procedure .....                      | 19        |
| 5.7.5      | How to describe test results .....               | 20        |
| 5.7.6      | Test Results .....                               | 20        |
| <b>5.8</b> | <b>CARRIER SENSING .....</b>                     | <b>21</b> |
| 5.8.1      | Test Setup .....                                 | 21        |
| 5.8.2      | Measurement procedure .....                      | 21        |
| 5.8.3      | Test Results .....                               | 21        |
| <b>6</b>   | <b>PHOTOGRAPHS OF THE TEST SET-UP .....</b>      | <b>22</b> |
| <b>7</b>   | <b>LIST OF TABLES .....</b>                      | <b>23</b> |
| <b>8</b>   | <b>LIST OF PHOTOGRAPHS .....</b>                 | <b>23</b> |

**Prüfbericht - Nr.: CN24D2RM 006**  
Test Report No.:

Seite 5 von 23  
Page 5 of 23

## 1 General Remarks

### 1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:  
Appendix A: Test result of 2.4GHz Wi-Fi.

Prüfbericht - Nr.: **CN24D2RM 006**  
Test Report No.:

Seite 6 von 23  
Page 6 of 23

## 2 Test Sites

### 2.1 Test Facilities

**TÜV Rheinland (Shenzhen) Co., Ltd.**

No.362, Huanguan Middle Road, Songyuansha Community, Guanhu Subdistrict, Longhua District, Shenzhen 518110, Guangdong, China

CNAS Registration No.: L3080

### 2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

| Equipment           | Manufacturer | Model    | Serial No. | Cal. Date  | Cal. until | Calibration Body | Calibration Method* |
|---------------------|--------------|----------|------------|------------|------------|------------------|---------------------|
| Signal Analyzer     | R&S          | FSV 40   | 101441     | 2023-07-26 | 2024-07-25 | GRGTEST          | c                   |
| Power Meter         | R&S          | NRP2     | 107105     | 2023-11-14 | 2024-11-13 | GRGTEST          | c                   |
| Power Sensor        | R&S          | NRP-Z81  | 105677     | 2023-07-26 | 2024-07-25 | GRGTEST          | c                   |
| DC Power Supply     | KIKUSUI      | PAN35-5A | YM002997   | 2024-03-01 | 2025-02-28 | GRGTEST          | c                   |
| Digital Multi Meter | FLUKE        | F15B     | 44350844WS | 2024-03-04 | 2025-03-03 | GRGTEST          | c                   |

Calibration Method:

- a) Calibration conducted by the National Institute of Information and Communications Technology (NICT) (hereinafter referred to as "NICT") or a designated calibration agency under Article 102-18 paragraph (1)
- b) Correction conducted pursuant to the provisions of Article 135 or Article 144 of the Measurement Law (Law No. 51 of 1992)
- c) Calibration conducted in foreign countries, which shall be equivalent to the calibration conducted by the NICT or a designated calibration agency under Article 102-18 paragraph (1)
- d) Calibration conducted by using measuring instruments and other equipment listed in the right column of Table No. 3 attached hereto, which shall have been given any of calibration, etc. listed above from a) to c)

### 2.3 Uncertainty of Measurement

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k=2$ .

Table 2: Measurement Uncertainty

| Parameter            | Uncertainty           |
|----------------------|-----------------------|
| Occupied Bandwidth   | $\pm 2.08 \%$         |
| Spurious emissions   | $\pm 3.68 \text{ dB}$ |
| Output power density | $\pm 0.99 \text{ dB}$ |
| Antenna Power        | $\pm 0.99 \text{ dB}$ |
| Frequency Tolerance  | 0.104 ppm             |

Prüfbericht - Nr.: **CN24D2RM 006**  
Test Report No.:

Seite 7 von 23  
Page 7 of 23

### 3 General Product Information

#### 3.1 Product Function and Intended Use

The EUT is a LED bulb which supports Bluetooth low energy and 2.4GHz Wi-Fi wireless technologies.

Model 15aSB-A800ST-Q1T\_JP, 15aSB-A800ST-Q1T\_JP-xP are the same as 13aSB-A806ST-Q1T\_JP.

This report based on report CN24D2RM 004 is for manufacturer change.

For details refer to the User Manual, Technical Description and Circuit Diagram.

#### 3.2 Ratings and System Details

Table 3: Technical Specification of EUT

| General Information of EUT              | Description                                                                                      |
|-----------------------------------------|--------------------------------------------------------------------------------------------------|
| Kind of Equipment:                      | LED bulb                                                                                         |
| Type Designation:                       | 13aSB-A806ST-Q1T_JP, 15aSB-A800ST-Q1T_JP,<br>15aSB-A800ST-Q1T_JP-xP                              |
| Operating Voltage:                      | AC 100V, 50/60Hz                                                                                 |
| Operating Temperature Range:            | -40 °C ~ +105 °C                                                                                 |
| Technical Specification of 2.4GHz Wi-Fi |                                                                                                  |
| Characteristic                          | Description                                                                                      |
| Frequency Range:                        | 2412 - 2472 MHz for 802.11b/g/n(HT20)<br>2422 - 2462 MHz for 802.11n(HT40)                       |
| Type of Modulation:                     | DSSS(DBPSK/DQPSK/CCK)<br>OFDM(BPSK/QPSK/16QAM/64QAM)                                             |
| Data Rate:                              | 1/2/5.5/11 Mbps for 802.11b<br>6/9/12/18/24/36/48/54 Mbps for 802.11g<br>MCS0 ~ MCS7 for 802.11n |
| Channel Number:                         | 13 channels for 802.11b/g/n(HT20)<br>9 channels for 802.11n(HT40)                                |
| Channel Separation:                     | 5 MHz                                                                                            |
| Antenna Type:                           | Integral Antenna                                                                                 |
| Antenna Gain:                           | 2.27 dBi (Provided by the Client)                                                                |
| rated RF output power:                  | Please refer to Note 1                                                                           |
| Conducted RF output power:              | Please refer to Note 1                                                                           |
| EIRP output power:                      | Please refer to Note 1                                                                           |

Note 1: The power table as below table:

| 2.4GHz Wi-Fi |                                 |                                     |                                |
|--------------|---------------------------------|-------------------------------------|--------------------------------|
| Test mode    | Rated power density<br>(mW/MHz) | Conducted power<br>density (mW/MHz) | EIRP power density<br>(mW/MHz) |
| 802.11b      | 10                              | 4.4361                              | 7.482                          |
| 802.11g      | 8                               | 2.2233                              | 3.750                          |

**Prüfbericht - Nr.: CN24D2RM 006**  
Test Report No.:

Seite 8 von 23  
Page 8 of 23

|                |   |        |       |
|----------------|---|--------|-------|
| 802.11n (HT20) | 8 | 1.9953 | 3.365 |
| 802.11n (HT40) | 5 | 1.0447 | 1.762 |

**Table 4: RF Channel and Frequency, 2.4GHz Wi-Fi**

| RF Channel | 802.11 b/g/n(HT20) | 802.11n(HT40)   |
|------------|--------------------|-----------------|
|            | Frequency (MHz)    | Frequency (MHz) |
| <b>01</b>  | <b>2412</b>        | /               |
| 02         | 2417               | /               |
| <b>03</b>  | 2422               | <b>2422</b>     |
| 04         | 2427               | 2427            |
| 05         | 2432               | 2432            |
| 06         | 2437               | 2437            |
| <b>07</b>  | <b>2442</b>        | <b>2442</b>     |
| 08         | 2447               | 2447            |
| 09         | 2452               | 2452            |
| 10         | 2457               | 2457            |
| <b>11</b>  | 2462               | <b>2462</b>     |
| 12         | 2467               | /               |
| <b>13</b>  | <b>2472</b>        | /               |

Test frequencies are lowest channel: 2412 MHz, middle channel: 2442 MHz and highest channel: 2472 MHz for 802.11b/g/n(HT20)

Test frequencies are lowest channel: 2422 MHz, middle channel: 2442 MHz and highest channel: 2462 MHz for 802.11n(HT40)

### 3.3 Antenna Specifications

#### 3.3.1 Antenna Gain

| Ant. Type        | Connector Type | Highest Peak Gain (dBi)<br>2.4GHz ~ 2.5GHz |
|------------------|----------------|--------------------------------------------|
| Integral Antenna | N/A            | 2.27 dBi                                   |

#### 3.3.2 Antenna Pattern

Please refer to the attached file (Antenna report).

### 3.4 Noise Generating and Noise Suppressing Parts

For details refer to the Circuit Diagram.

### 3.5 Submitted Documents

- Application Form
- User Manual
- Operation Description
- Block Diagram

**Prüfbericht - Nr.: CN24D2RM 006**  
Test Report No.:

Seite 9 von 23  
Page 9 of 23

- PCB Layout

- Rating Label

Prüfbericht - Nr.: CN24D2RM 006  
Test Report No.:

Seite 10 von 23  
Page 10 of 23

## 4 Test Set-up and Operation Modes

### 4.1 Principle of Configuration Selection

**Emission:** The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

**Radio Spectrum:** The equipment under test (EUT) was configured at its highest power output in order to measure its highest possible radiation and conducted level. The test modes were adapted accordingly in reference to the instructions for use.

### 4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5 and chapter 6.

According to clause 3.1, all tests were performed on model 13aSB-A806ST-Q1T\_JP in this report.

Table 5: Test Conditions

| Test conditions           | Unit       |
|---------------------------|------------|
| Voltage <sub>normal</sub> | 3.3V dc    |
| Voltage <sub>max</sub>    | 3.63V dc   |
| Voltage <sub>min</sub>    | 2.97V dc   |
| Temperature               | 24.8 deg.C |
| Humidity                  | 55 %       |

### 4.3 Special Accessories and Auxiliary Equipment

Table 6: List of Accessories and Auxiliary Equipment

| Description | Manufacturer | Model | S/N       |
|-------------|--------------|-------|-----------|
| Laptop      | Lenovo       | T480  | PF-16A6N8 |

### 4.4 Countermeasures to Achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Technical Construction File (TCF).

No additional measures were employed to achieve compliance.

Prüfbericht - Nr.: **CN24D2RM 006**  
Test Report No.:

Seite 11 von 23  
Page 11 of 23

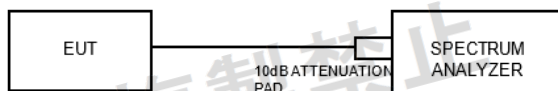
## 5 Test Results

### 5.1 Frequency Tolerance Measurement

#### 5.1.1 Limits of Frequency Tolerance Measurement

Tolerance of frequency shall be +/- 50ppm.

#### 5.1.2 Test Setup



#### 5.1.3 Condition of Measuring Instrument

- (1) As a frequency meter, use a frequency counter or spectrum analyzer (with a synthesizer type local oscillator).
- (2) The measurement accuracy of the frequency meter shall be 1/10 or less of the allowable value specified in the Equipment Regulations.
- (3) When measuring burst waves, set the gate open time to the time that allows the entire burst section to be measured.

#### 5.1.4 Condition of Test Equipment

- (1) Set the test frequency and transmit.
- (2) Stop modulation and continuously transmit non-modulated waves. However, if modulation is stopped and continuous transmission of unmodulated waves cannot be performed, continuous burst transmission of unmodulated waves or a modulation state that produces a characteristic frequency spectrum whose frequency can be measured by a spectrum analyzer is used.

#### 5.1.5 Measurement procedure

- (1) In the case of unmodulated waves (continuous or continuous burst), measure directly with a frequency meter.
- (2) In the case of burst waves, measure for the time period when sufficient accuracy is obtained, calculate the average value, and use it as the measured value.
- (3) If the test mode produces a characteristic frequency spectrum, measure the frequency of that spectrum with a spectrum analyzer.

#### 5.1.6 Test Results

Result **PASS**

For the measurement records, refer to the appendix A.

Prüfbericht - Nr.: **CN24D2RM 006**  
Test Report No.:

Seite 12 von 23  
Page 12 of 23

## 5.2 Occupied Bandwidth Measurement (99% Power Bandwidth)

### 5.2.1 Limits of Occupied Bandwidth Measurement

| Item               | Limit                    | Remark  |
|--------------------|--------------------------|---------|
| Occupied bandwidth | shall be 83.5MHz or less | FHSS    |
| Occupied bandwidth | <26MHz                   | For 20M |
| Occupied bandwidth | <40MHz                   | For 40M |

### 5.2.2 Test Setup



### 5.2.3 Measuring Instrument Conditions

Set the spectrum analyzer as follows.

Center frequency: Test frequency

Sweep frequency width From about 2 times to about 3.5 times the allowable value specified in the equipment regulations

Resolution bandwidth: 3% or less of the allowable value specified in the equipment regulations

Video bandwidth: Same as resolution bandwidth

Input level : The level at which the carrier wave level can be measured without being affected by the noise level of the spectrum analyzer.

Sweep time: Minimum time for guaranteed measurement accuracy

(In the case of burst waves, when more than 1 burst per sample)

Sweep mode: Continuous sweep

Detection mode: Positive peak (Note)

Display mode: Max hold (Note)

Note: For OFDM and other than burst waves, the following shall apply.

Average processing times 10 times or more

Detection mode sample

### 5.2.4 Test Results

Result **PASS**

For the measurement records, refer to the appendix A.

Prüfbericht - Nr.: **CN24D2RM 006**  
Test Report No.:

Seite 13 von 23  
Page 13 of 23

## 5.3 Spreading Bandwidth Measurement (90% Power Bandwidth)

### 5.3.1 Limits of Spreading Bandwidth and Spreading Factor

| Item                | Limit                | Remark                              |
|---------------------|----------------------|-------------------------------------|
| Spreading Bandwidth | $\geq 500\text{kHz}$ | (For DSSS, FHSS)                    |
| Spreading Factor    | $\geq 5$             | Operating frequency 2400 to 2483MHz |
|                     | $\geq 10$            | Operating frequency 2471 to 2497MHz |

### 5.3.2 Test Setup



### 5.3.3 Measuring Instrument Conditions

Set the spectrum analyzer as follows.

Center frequency: Test frequency

Sweep frequency width: From about 2 times to about 3.5 times the allowable value specified in the equipment regulations

Resolution bandwidth: 3% or less of the allowable value specified in the equipment regulations

Video bandwidth: Same as resolution bandwidth

Input level: The level at which the carrier wave level can be measured without being affected by the noise level of the spectrum analyzer.

Sweep time: Minimum time for guaranteed measurement accuracy  
(In the case of burst waves, when more than 1 burst per sample)

Sweep mode: Continuous sweep

Detection mode: Positive peak (Note)

Display mode: Max hold (Note)

Note: For OFDM and other than burst waves, the following shall apply.

Average processing times 10 times or more

Detection mode sample

### 5.3.4 Test Results

Result **PASS**

For the measurement records, refer to the appendix A.

Prüfbericht - Nr.: **CN24D2RM 006**  
Test Report No.:

Seite 14 von 23  
Page 14 of 23

## 5.4 Spurious Emissions for Transmitter Measurement

### 5.4.1 Limits of Spurious Emissions

| Frequencies (MHz)                     | Limit                     |
|---------------------------------------|---------------------------|
| Operating frequency 2400 to 2483.5MHz |                           |
| 30.0MHz to 2387MHz                    | $\leq 2.5\mu\text{W/MHz}$ |
| 2387.0MHz to 2400.0MHz                | $\leq 25\mu\text{W/MHz}$  |
| 2483.5MHz to 2496.5MHz                | $\leq 25\mu\text{W/MHz}$  |
| 2496.5MHz to 12500.0MHz               | $\leq 2.5\mu\text{W/MHz}$ |

### 5.4.2 Test Setup



### 5.4.3 Conditions of The Measuring Instrument.

- (1) The spectrum analyzer when searching for **unwanted emissions** is set as follows.
  - Sweep frequency width: 30MHz to 26GHz (Note)
  - Resolution bandwidth: 1MHz
  - Video bandwidth: Same as resolution bandwidth
  - Y-axis scale: 10dB/Div
  - Input level: Maximum dynamic range value
  - Sweep time: The minimum time for which measurement accuracy is guaranteed (in the case of burst waves, it can be longer than the time obtained by "(sweep frequency width (MHz)/resolution Bandwidth (MHz)) × burst period (s)".) It can be longer than the time required
  - Number of data points: 400 or more data points
  - Sweep mode: Single sweep
  - Detection mode: positive peak
- (2) Set the spectrum analyzer as follows when measuring unwanted emission amplitude.
  - Center frequency: Unwanted emission frequency (searched frequency)
  - Sweep frequency width: 0Hz
  - Resolution bandwidth: 1MHz
  - Video bandwidth: Same as resolution bandwidth
  - Y-axis scale: 10dB/Div
  - Input level Maximum dynamic range value
  - Sweep time; The minimum time for which the measurement accuracy is guaranteed (in the case of burst waves, the duration of one burst or more)
  - Number of data points: 400 or more data points
  - Sweep mode: Single sweep
  - Detection mode: sample

### 5.4.4 Others

- (1) In 2(2), the detection mode of the spectrum analyzer at the time of amplitude measurement can use RMS (referred to as the true value of power) instead of sampling.
- (2) In (1), if the burst time rate (Note) of unwanted emission is obtained for each unwanted emission frequency, the sweep frequency width can be set to about 10 MHz in (2).

Note: Burst time rate = time during which radio waves are emitted/burst period.

**Prüfbericht - Nr.: CN24D2RM 006**  
Test Report No.:

Seite 15 von 23  
Page 15 of 23

#### 5.4.5 Conditions of the measuring instrument

- (1) Use a carrier suppression filter as necessary.
  - (2) The settings of the spectrum analyzer when searching for spurious are as follows.  
Sweep frequency width: Search for spurious from the lowest possible frequency to three times or more of the carrier frequency.  
Resolution bandwidth: 100 kHz below 1 GHz, 1 MHz above 1 GHz  
Video bandwidth: Same as resolution bandwidth  
Y-axis scale: 10dB/Div  
Input level: Maximum dynamic range value  
Sweep time: Minimum time for guaranteed measurement accuracy  
Number of data points: 400 or more data points  
Sweep mode: Single sweep  
Detection mode: positive peak
  - (3) Set the spectrum analyzer for spurious measurement as follows.  
Center frequency: Searched spurious frequency  
Sweep frequency: 0Hz  
Resolution bandwidth: 10 kHz below 30 MHz, 100 kHz between 30 MHz and 1 GHz, 1 MHz above 1 GHz  
Video bandwidth: Same as resolution bandwidth  
Y-axis scale: 10dB/Div  
Input level: Set the amplitude of the carrier wave near the maximum in the linear region of the mixer.  
Sweep time: Minimum time for guaranteed measurement accuracy  
Number of data points: 400 or more data points  
Sweep mode: Single sweep  
Detection mode: sample
- Spurious Emission
- (1) Set the spectrum analyzer as follows when searching.  
Sweep frequency width: 30MHz to 5 times the carrier frequency  
Resolution bandwidth: 100 kHz for frequencies below 1 GHz, 1 MHz for frequencies above 1 GHz  
Video bandwidth: Same as resolution bandwidth  
Sweep time: Minimum time for guaranteed measurement accuracy  
Sweep mode: Single sweep  
Detection mode: positive peak
  - (2) Set the spectrum analyzer for secondary emission measurement as follows.  
Center frequency: Secondary emission frequency  
Sweep frequency width: 0Hz  
Resolution bandwidth: 100 kHz for frequencies below 1 GHz, 1 MHz for frequencies above 1 GHz  
Video bandwidth: Same as resolution bandwidth  
Sweep time: Minimum time for guaranteed measurement accuracy  
Sweep mode: Single sweep  
Detection mode: sample

#### 5.4.6 Test Results

**Result** **PASS**

**For the measurement records, refer to the appendix A.**

## 5.5 Antenna Power Measurement

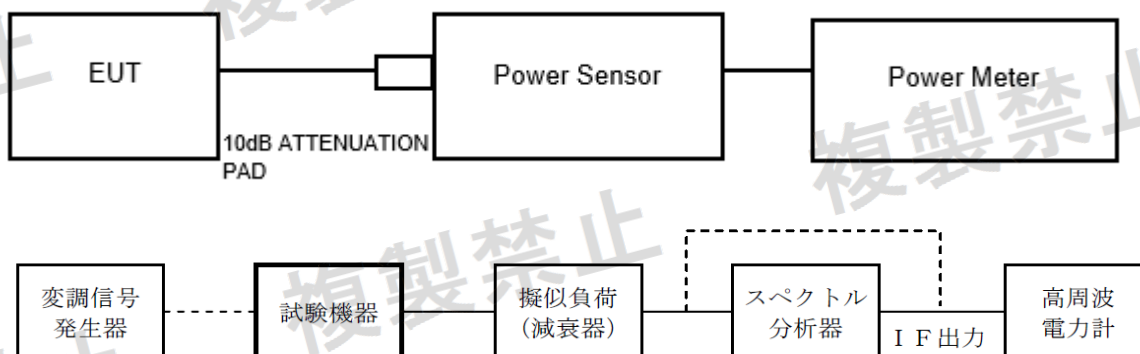
### 5.5.1 Limits of Antenna Power

| Modulation system     | Frequency band used | Antenna power (max.) | EIRP (max)                       |                                   |
|-----------------------|---------------------|----------------------|----------------------------------|-----------------------------------|
|                       |                     |                      | Omni-directional case            | Directional case                  |
| FHSS                  | 2,400 – 2,4835 MHz  | 3mW/MHz              | --                               | --                                |
| DS.OFDM (Narrow-Band) | 2,400 – 2,4835 MHz  | 10mW/MHz             | 12.14 dBm/MHz<br>(16.367 mW/MHz) | 22.14 dBm/MHz<br>(163.682 mW/MHz) |
| OFDM (Wide-Band)      | 2,400 – 2,4835 MHz  | 5mW/MHz              | 9.13dBm/MHz<br>(8.185mW/MHz)     | 19.13dBm/MHz<br>(81.846mW/MHz)    |
| DTS                   | 2,400 – 2,4835 MHz  | 10mW                 | 12.14 dBm<br>16.367 mW           | 22.14 dBm<br>163.682 mW           |

Tolerance of antenna power shall be +20% (upper value).

According article 49.20 f(2) The angular width of the principal radiation in the horizontal and vertical planes of the transmitting antenna shall not exceed the value obtained by the following expression.  $360/A$  degree  
A represents the value determined by dividing an equivalent isotropically radiated power by the value obtained by applying an antenna power with the mean power of 10 mW to the transmitting antenna with its absolute gain being 2.14 dB, and shall be 1 when it is lower than 1.

### 5.5.2 Test Setup



Note: A high-frequency power meter is directly connected to the output of a dummy load (attenuator) when measuring the total power of a system other than the orthogonal frequency division multiplexing system or the spread spectrum system using direct spreading.

### 5.5.3 Condition of Measuring Instrument

- (1) Measure the equivalent noise bandwidth at the resolution bandwidth of 1 MHz of the spectrum analyzer, correct the bandwidth to the 1 MHz equivalent bandwidth, and read the displayed value. However, when the spread bandwidth is 1 MHz or less, correction shall be performed only when "spread bandwidth (MHz)/equivalent noise bandwidth (MHz)" exceeds 1.
- (2) The attenuation of the dummy load (attenuator) shall be the value that gives the optimum operating input level to the spectrum analyzer.
- (3) Set the spectrum analyzer as follows when searching for the frequency that gives the maximum antenna power.

**Prüfbericht - Nr.: CN24D2RM 006**  
Test Report No.:

Seite 17 von 23  
Page 17 of 23

|                                                                                            |                                                  |
|--------------------------------------------------------------------------------------------|--------------------------------------------------|
| Center frequency:                                                                          | Test frequency                                   |
| Sweep frequency width:                                                                     | About twice the occupied frequency bandwidth     |
| Resolution bandwidth:                                                                      | 1MHz                                             |
| Video bandwidth:                                                                           | About three times the resolution bandwidth       |
| Sweep time:                                                                                | Minimum time for guaranteed measurement accuracy |
| (In the case of burst waves, the time at which one or more bursts are included per sample) |                                                  |
| Trigger condition:                                                                         | Free run                                         |
| Sweep mode:                                                                                | Continuous sweep                                 |
| Detection mode:                                                                            | positive peak                                    |
| Display mode:                                                                              | Max hold                                         |

(4) Set the spectrum analyzer as follows when measuring the antenna power.

|                        |                                                                 |
|------------------------|-----------------------------------------------------------------|
| Center frequency       | The frequency that gives the maximum power (searched frequency) |
| Sweep frequency width: | 0Hz                                                             |
| Resolution bandwidth:  | 1MHz                                                            |
| Video bandwidth :      | Same as resolution bandwidth                                    |
| Sweep mode:            | Continuous sweep                                                |

#### 5.5.4 Condition of Test Equipment

- (1) Set to the test frequency and enter the continuous transmission state or continuous burst transmission state.
- (2) If a spread code is used, set it to the test spread code and modulate it with the standard coded test signal.
- (3) If the orthogonal frequency division multiplexing system is used, it shall be in a burst transmission state and in a modulation state in which the proportion of time in which the number of subcarriers is the smallest is maximized. At this time, it is performed within a range that can occur continuously in the actual operation. However, when the modulation cannot be set, it can be performed in continuous burst transmission state or continuous transmission state.

#### 5.5.5 Measurement Procedure

**(1) Those using frequency hopping method (including DSSS or composite method with OFDM)**

a. Confirming in the submitted document that the frequency hopping intervals in the frequency distribution of frequency hopping are equal intervals of 1 MHz or less, and that the probability of occurrence at each hopping frequency is uniform, and that the probability of occurrence at each hopping frequency is uniform. If it is, it is implemented by the following method.

(a) Connect a high frequency power meter to the output of the dummy load (attenuator) and measure the total power.

(b) Divide the total power by the spreading bandwidth to calculate the average power per 1 MHz.

(c) Antenna power shall be as follows.

A Value of (b) for continuous wave

B For burst wave Average power in burst is calculated from the value of (b) and the transmission time rate.

b. If the frequency distribution of frequency hopping or the probability of occurrence at each hopping frequency is not uniform, set the spectrum analyzer as in 2(3) to search for the frequency that gives the maximum antenna power, and then perform spectrum analysis. Set the device as in 2(4), and measure the antenna power at the frequency that gives the maximum power.

**(2) In the case of those using OFDM or DSSS**

a. Set the spectrum analyzer as in 2(3).

b. After repeating the sweep until no change is observed in the display, measure the frequency at which the power per 1 MHz gives the maximum value.

c. Set the spectrum analyzer as in 2(4).

d. Connect the high frequency power meter to the IF output terminal of the spectrum analyzer.

e. Antenna power shall be as follows.

(a) For continuous wave: The value corrected by 2(1) from the indication of the high-frequency power meter

(b) Burst wave: Calculated average power in a burst from values corrected in the same way

**Prüfbericht - Nr.: CN24D2RM 006**  
Test Report No.:

Seite 18 von 23  
Page 18 of 23

- as for continuous waves and the transmission time rate
- f. In the case of using the orthogonal frequency division multiplexing system, when there are multiple subcarrier modulation systems, measure the antenna power at each time and take the largest value as the measured value.

**(3) In the case of items using other methods**

- (a) Connect a high-frequency power meter to the output of the dummy load (attenuator) and measure the total power.
- (b) Antenna power shall be as follows.
- a. Value of a for continuous wave
- b. Burst wave The average power in the burst is calculated from the value of (a) and the transmission time rate.

**5.5.6 Test Results**

**Result** **PASS**

For the measurement records, refer to the appendix A.

Prüfbericht - Nr.: **CN24D2RM 006**  
Test Report No.:

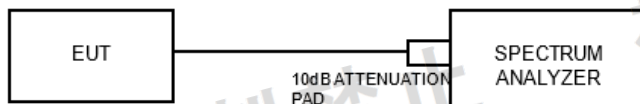
Seite 19 von 23  
Page 19 of 23

## 5.6 Spurious Emissions for Receiver

### 5.6.1 Limits of Spurious Emissions for Receiver

| Frequencies (MHz) | Limit                       |
|-------------------|-----------------------------|
| Below 1GHz        | $\leq 4\text{nW}$ (-54dBm)  |
| Above 1GHz        | $\leq 20\text{nW}$ (-47dBm) |

### 5.6.2 Test Setup



### 5.6.3 Measurement Procedure

(1) Set the spectrum analyzer as follows when searching.

Sweep frequency width: 30MHz to 5 times the carrier frequency

Resolution bandwidth: 100 kHz for frequencies below 1 GHz, 1 MHz for frequencies above 1 GHz

Video bandwidth: Same as resolution bandwidth

Sweep time: Minimum time for guaranteed measurement accuracy

Sweep mode: Single sweep

Detection mode: positive peak

(2) Set the spectrum analyzer for secondary emission measurement as follows.

Center frequency: Secondary emission frequency

Sweep frequency width: 0Hz

Resolution bandwidth: 100 kHz for frequencies below 1 GHz, 1 MHz for frequencies above 1 GHz

Video bandwidth: Same as resolution bandwidth

Sweep time: Minimum time for guaranteed measurement accuracy

Sweep mode: Single sweep

Detection mode: sample

### 5.6.4 Test Results

Result

PASS

For the measurement records, refer to the appendix A.

Prüfbericht - Nr.: **CN24D2RM 006**  
Test Report No.:

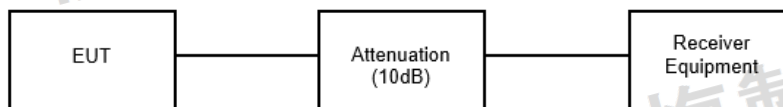
Seite 20 von 23  
Page 20 of 23

## 5.7 Interference Prevention Function

### 5.7.1 Limits of Interference Prevention Function

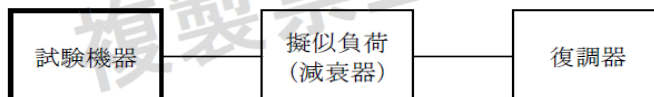
N/A

### 5.7.2 Test Setup

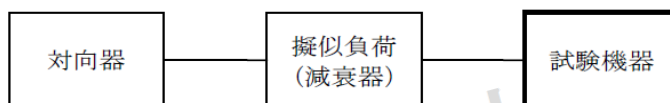


Measurement system diagram

(1) When sending an identification code



(2) When receiving an identification code



### 5.7.3 Condition of Measuring Instrument

(1) The demodulator shall be able to demodulate the transmission signal sent by EUT and display the content of the identification code.

(2) The counterpart device shall be capable of transmitting the same identification code as the transmission signal transmitted by EUT.

3 Condition of test equipment

Normal use condition.

### 5.7.4 Measurement procedure

(1) When EUT has a function to automatically transmit an identification code

- Transmit the identification code specified in the Equipment Regulations from the test equipment.
- Check the identification code sent by the demodulator.

(2) When the test equipment has a function to automatically receive the identification code

- Transmit the identification code specified in the Equipment Regulations from the counterpart device.
- Confirm that communication is performed with the EUT using the dedicated jig.
- Transmit a code different from the identification code specified in the Equipment Regulations from the counterpart device.
- Confirm that EUT stops transmission or displays that the identification code is different.

**Prüfbericht - Nr.: CN24D2RM 006**  
Test Report No.:

Seite 21 von 23  
Page 21 of 23

### 5.7.5 How to describe test results

(1) When EUT has a function to automatically transmit an identification code

If the code stipulated in the equipment rule and the demodulated code are the same, it is described as "passed", and if they are different, it is described as "failed".

(2) When the test equipment has a function to automatically receive the identification code

If the received code is the code stipulated in the equipment regulations, normal reception is performed, and if the code is different from the code stipulated in the equipment regulations, a message indicating that the code is different is displayed. "No" shall be entered in other case.

### 5.7.6 Test Results

| Link Mode | Test Result |
|-----------|-------------|
| Wi-Fi     | PASS        |

EUT connected, MAC address as below:

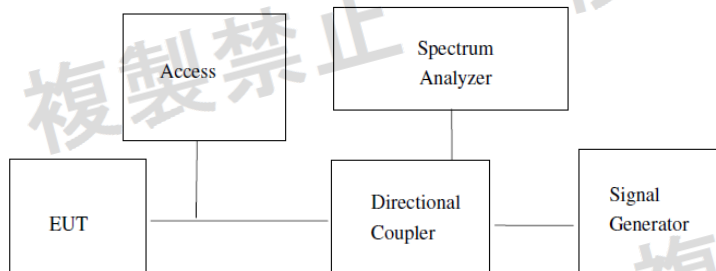
Wi-Fi: 64:E8:33:20:80:C4

Prüfbericht - Nr.: **CN24D2RM 006**  
Test Report No.:

Seite 22 von 23  
Page 22 of 23

## 5.8 Carrier Sensing

### 5.8.1 Test Setup



### 5.8.2 Measurement procedure

- (a) Link EUT and Access Point to Directional Coupler input port.
  - (b) Link Signal Generator and Spectrum Analyzer to test port and output port in the Directional Coupler separately.
  - (c) A positive Peak Detector function in Spectrum Analyzer must be used.
  - (d) Set the Span to Zero.
- Press the Signal Generator on and it will output the Carrier Signal. When the Link breaks off, wait a minute and press the Signal Generator off. After a while, reset the Link and done the test.

Signal Generator Power Level (dBm) =  $22.79 + G - 20\log(F)$

G: Antenna Gain

F: operation frequency

### 5.8.3 Test Results

Result **PASS**

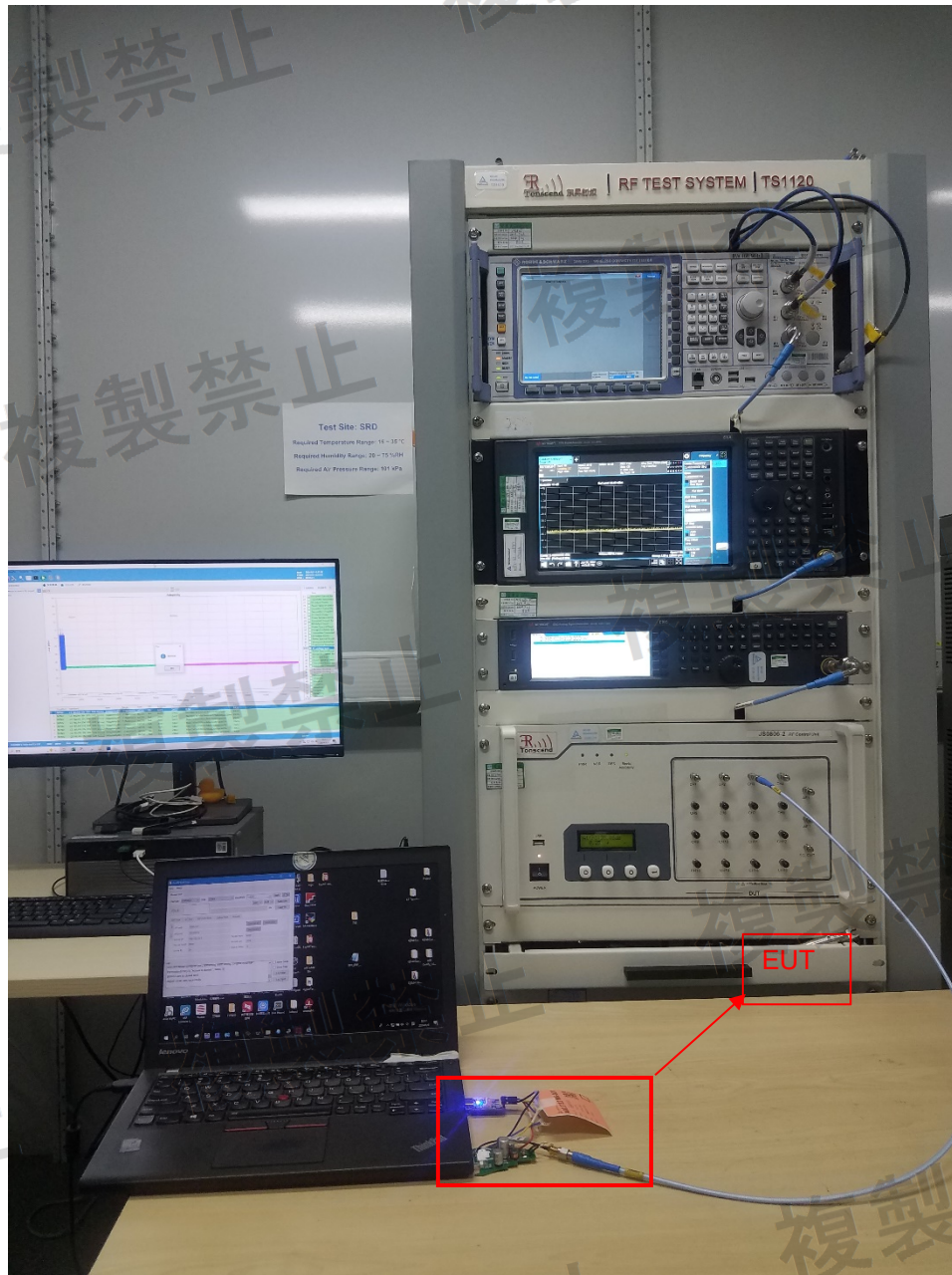
For the measurement records, refer to the appendix A.

Prüfbericht - Nr.: **CN24D2RM 006**  
Test Report No.:

Seite 23 von 23  
Page 23 of 23

## 6 Photographs of the Test Set-Up

Photograph 1: Set-up for Radio Spectrum Testing



**Prüfbericht - Nr.: CN24D2RM 006**  
Test Report No.:

Seite 24 von 23  
Page 24 of 23

## 7 List of Tables

|                                                           |   |
|-----------------------------------------------------------|---|
| Table 1: List of Test and Measurement Equipment.....      | 6 |
| Table 2: Measurement Uncertainty .....                    | 6 |
| Table 3: Technical Specification of EUT.....              | 7 |
| Table 4: RF Channel and Frequency, 2.4GHz Wi-Fi.....      | 8 |
| Table 5: Test Conditions.....                             | 9 |
| Table 6: List of Accessories and Auxiliary Equipment..... | 9 |

## 8 List of Photographs

|                                                      |    |
|------------------------------------------------------|----|
| Photograph 1: Set-up for Radio Spectrum Testing..... | 22 |
|------------------------------------------------------|----|

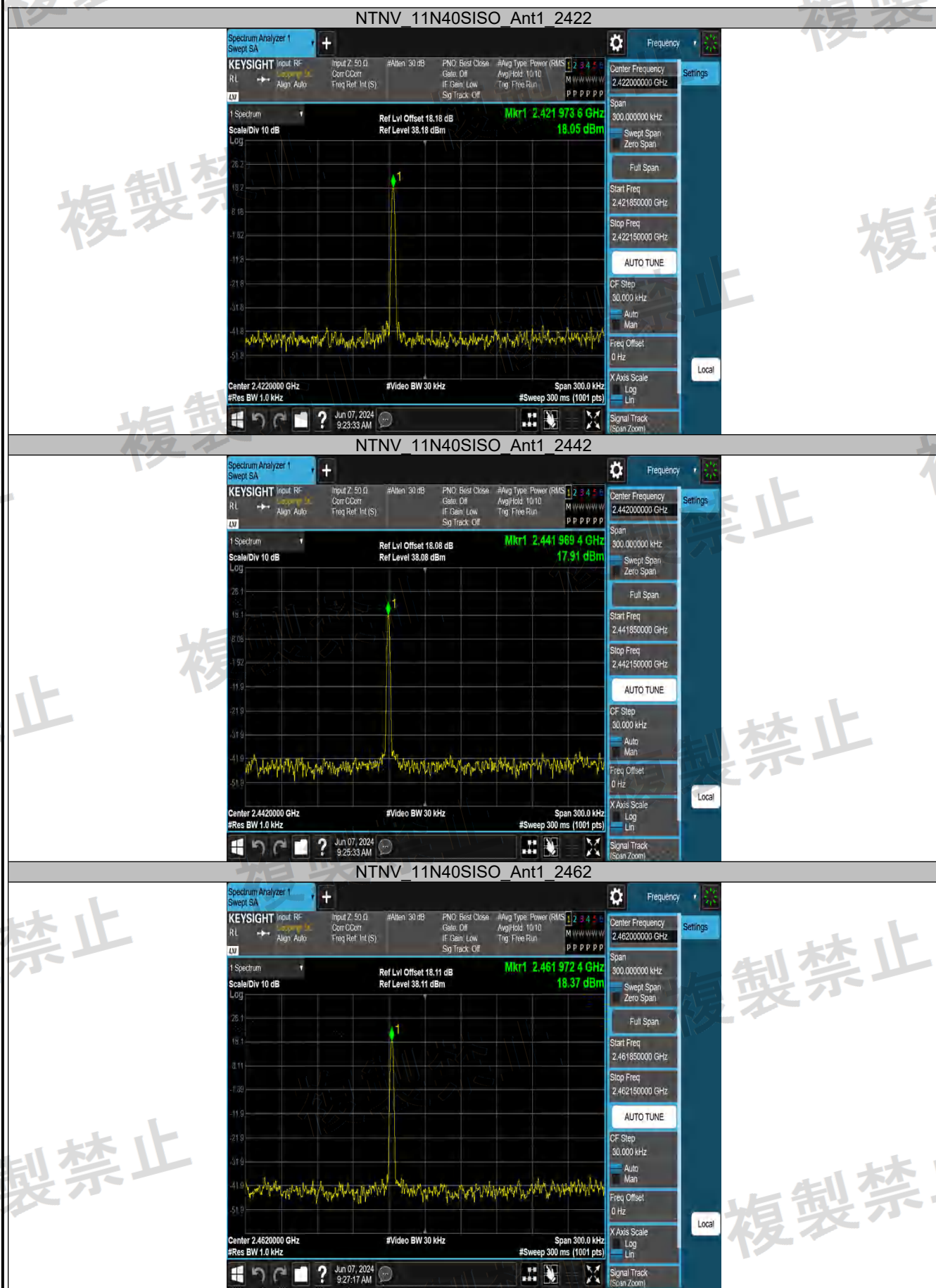
## Appendix A: Test Results of 2.4GHz Wi-Fi

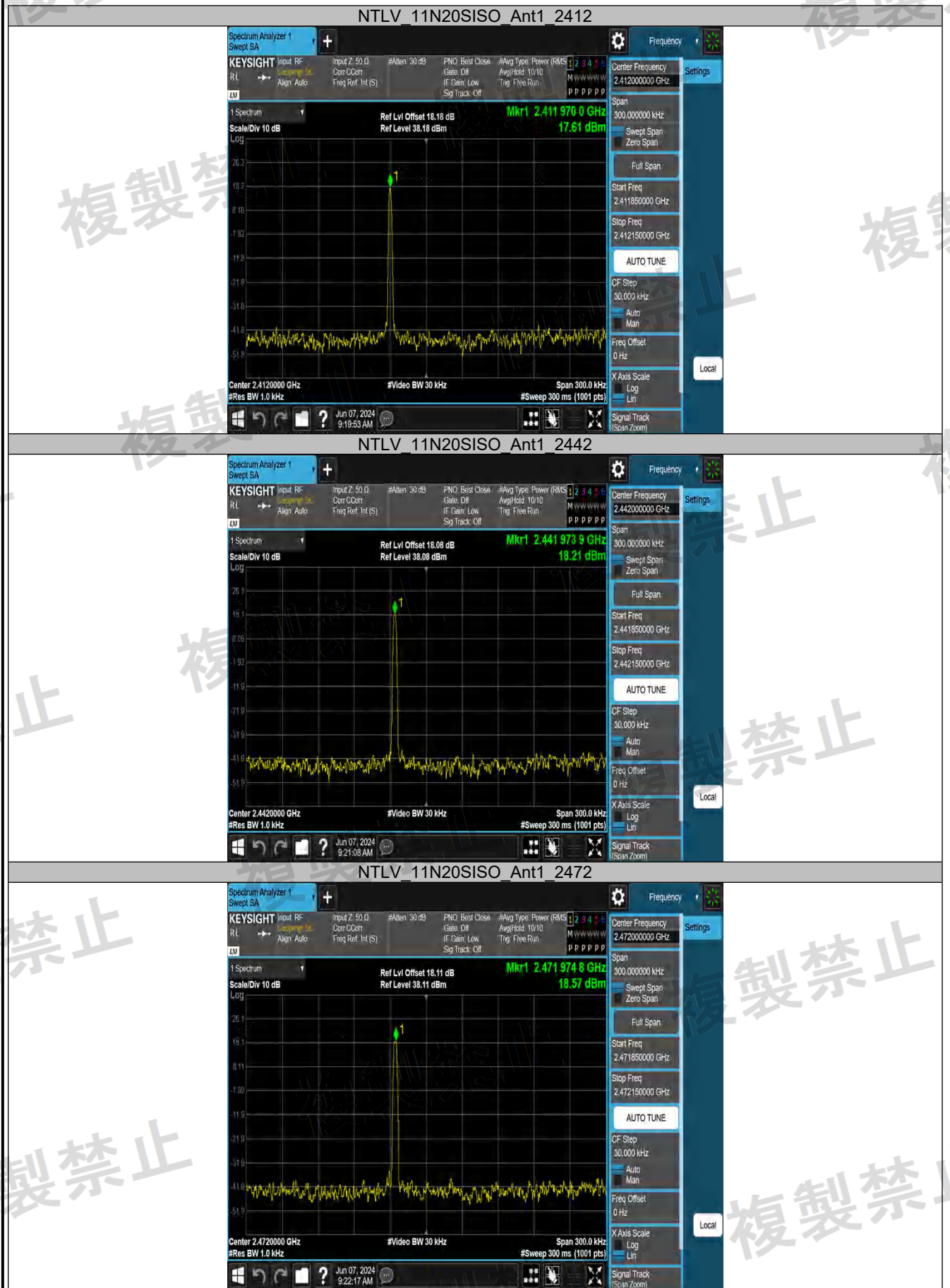
|                                                                        |     |
|------------------------------------------------------------------------|-----|
| APPENDIX A.1: TEST RESULTS OF FREQUENCY TOLERANCE .....                | 2   |
| APPENDIX A.2: TEST RESULTS OF OCCUPIED CHANNEL BANDWIDTH (99%) .....   | 9   |
| APPENDIX A.3: TEST RESULTS OF SPREAD BANDWIDTH (90%) .....             | 22  |
| APPENDIX A.4: TEST RESULTS OF ANTENNA POWER .....                      | 35  |
| APPENDIX A.5: TEST RESULTS OF SPURIOUS EMISSIONS FOR TRANSMITTER ..... | 37  |
| APPENDIX A.6: TEST RESULTS OF SPURIOUS EMISSIONS FOR RECEIVER .....    | 112 |
| APPENDIX A.7: TEST RESULTS OF CARRIER SENSING .....                    | 150 |

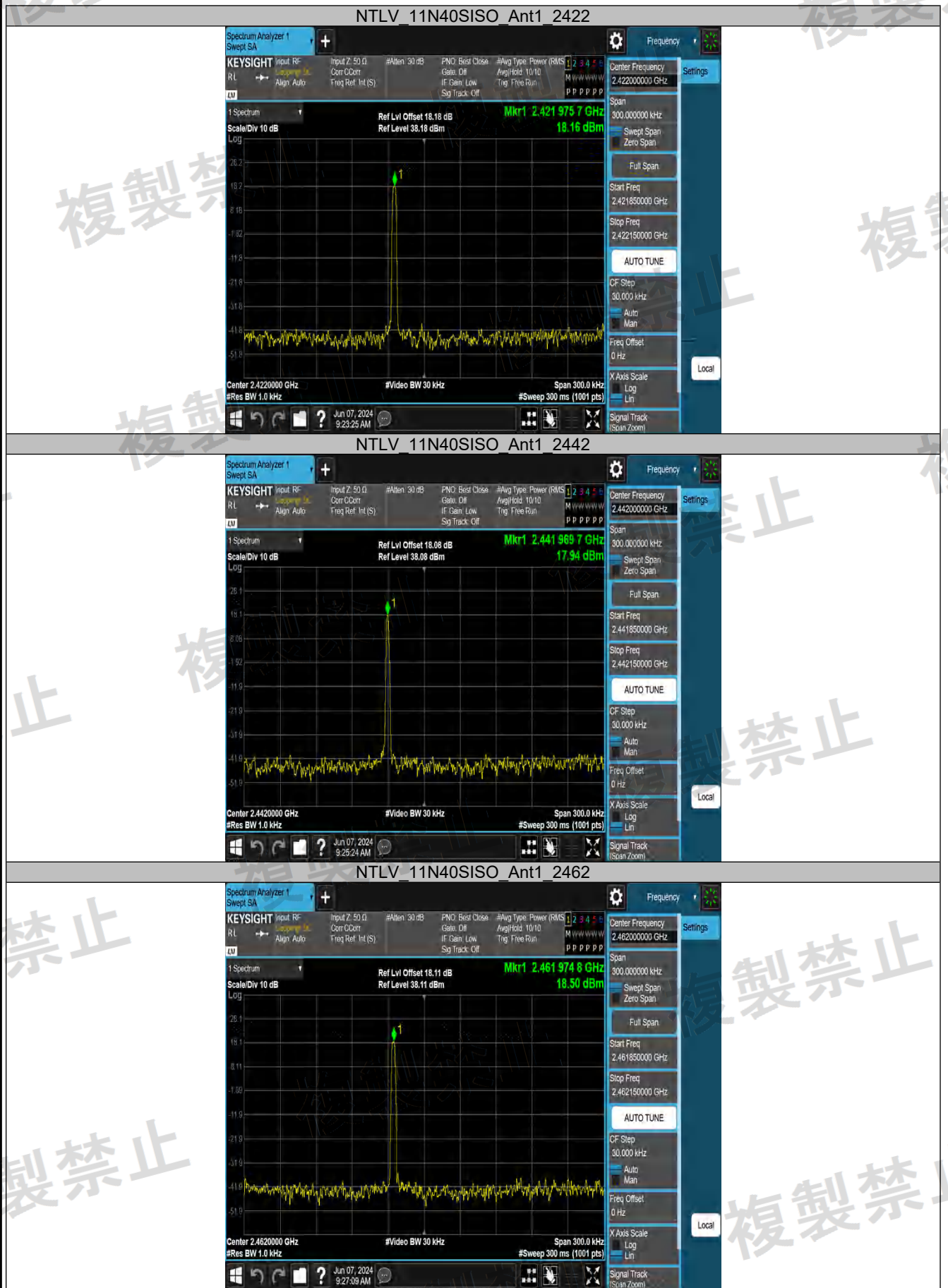
## Appendix A.1: Test Results of Frequency Tolerance

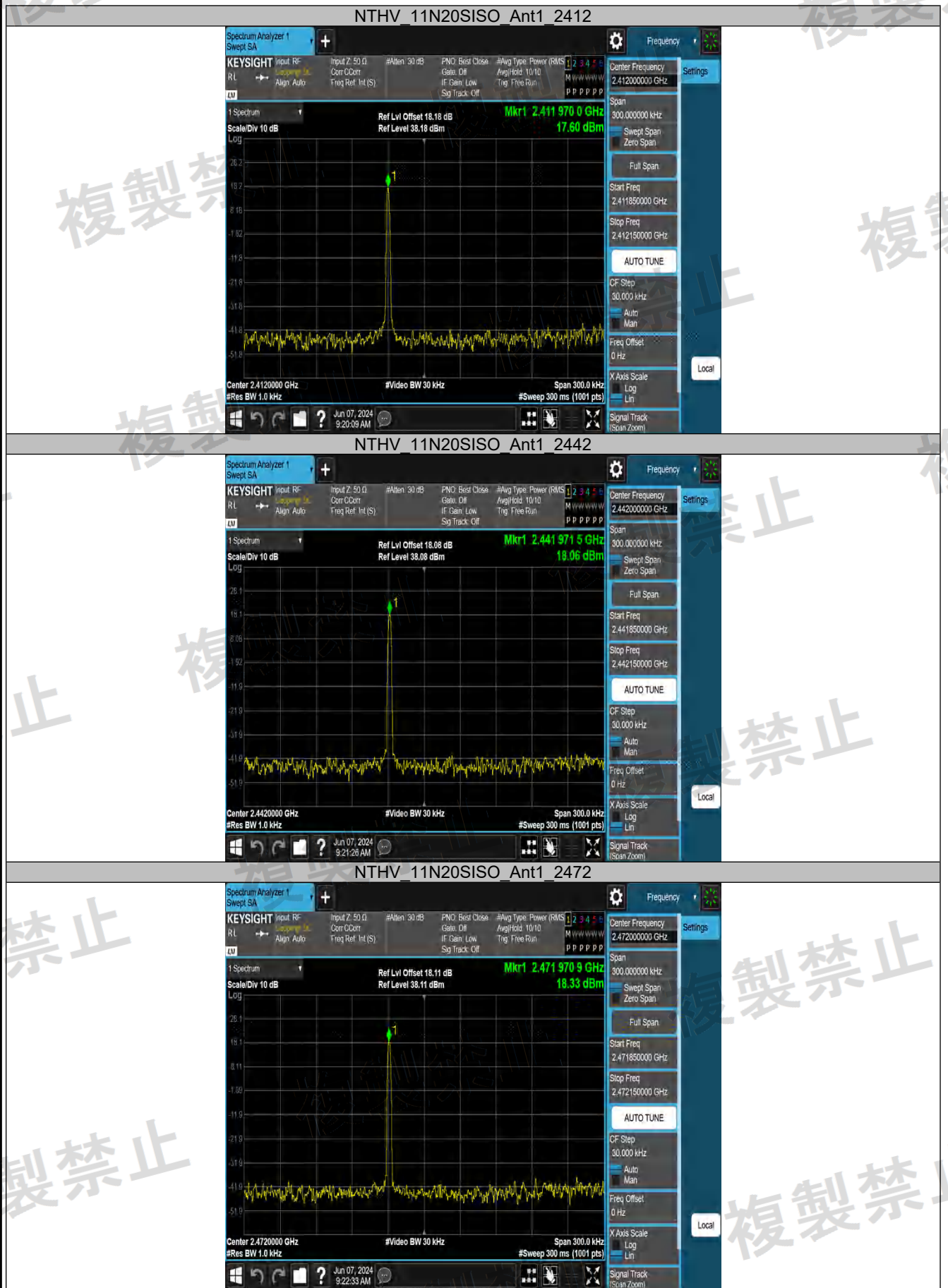
| TestCondition | TestMode  | Antenna | Frequency [MHz] | Result [ppm] | Limit [ppm] | Verdict |
|---------------|-----------|---------|-----------------|--------------|-------------|---------|
| NTNV          | 11N20SISO | Ant1    | 2412            | -12.43781    | ±50         | PASS    |
|               |           |         | 2442            | -11.30221    | ±50         | PASS    |
|               |           |         | 2472            | -11.16505    | ±50         | PASS    |
|               | 11N40SISO | Ant1    | 2422            | -10.90008    | ±50         | PASS    |
|               |           |         | 2442            | -12.53071    | ±50         | PASS    |
|               |           |         | 2462            | -11.21040    | ±50         | PASS    |
| NTLV          | 11N20SISO | Ant1    | 2412            | -12.43781    | ±50         | PASS    |
|               |           |         | 2442            | -10.68796    | ±50         | PASS    |
|               |           |         | 2472            | -10.19418    | ±50         | PASS    |
|               | 11N40SISO | Ant1    | 2422            | -10.03303    | ±50         | PASS    |
|               |           |         | 2442            | -12.40786    | ±50         | PASS    |
|               |           |         | 2462            | -10.23558    | ±50         | PASS    |
| NTHV          | 11N20SISO | Ant1    | 2412            | -12.43781    | ±50         | PASS    |
|               |           |         | 2442            | -11.67076    | ±50         | PASS    |
|               |           |         | 2472            | -11.77185    | ±50         | PASS    |
|               | 11N40SISO | Ant1    | 2422            | -11.39554    | ±50         | PASS    |
|               |           |         | 2442            | -12.40786    | ±50         | PASS    |
|               |           |         | 2462            | -11.69781    | ±50         | PASS    |





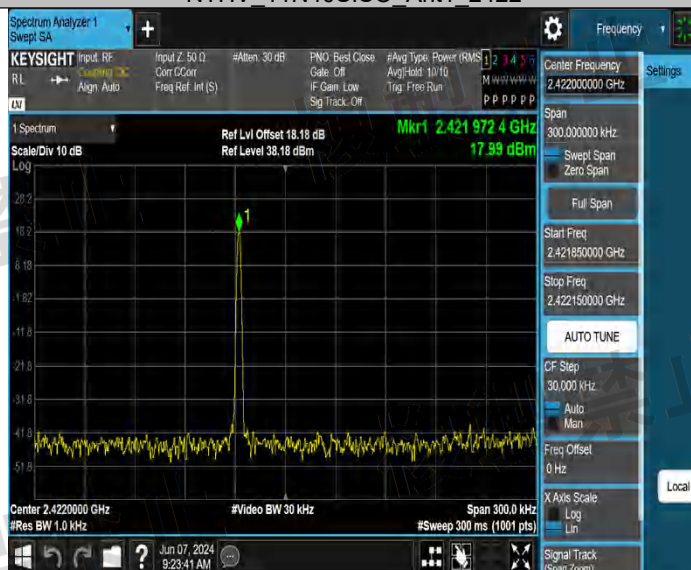








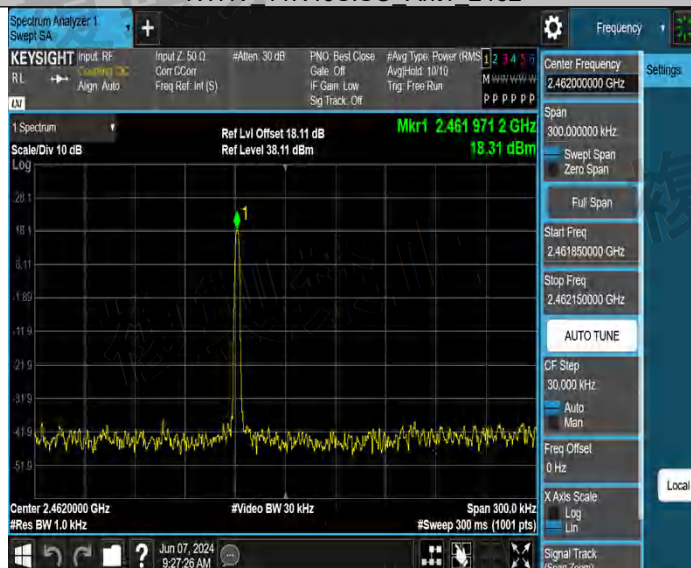
## NTHV\_11N40SISO\_Ant1\_2422



## NTHV\_11N40SISO\_Ant1\_2442



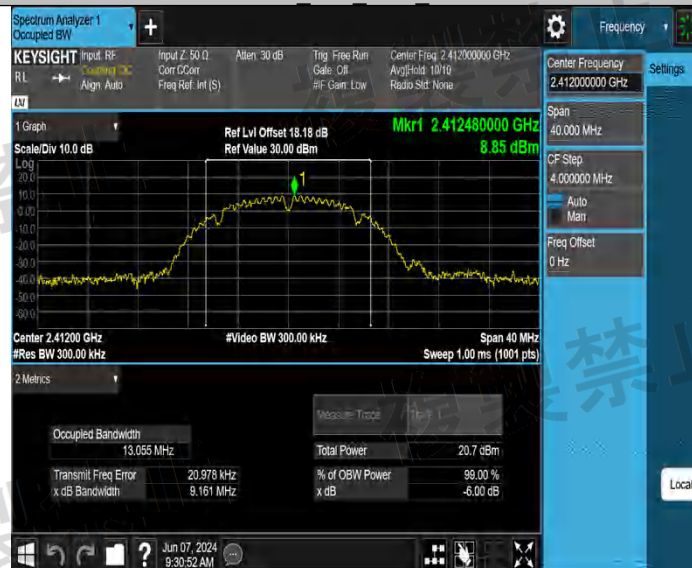
## NTHV\_11N40SISO\_Ant1\_2462




**Appendix A.2: Test Results of Occupied Channel Bandwidth (99%)**

| TestCondition | TestMode  | Antenna | Frequency [MHz] | Result [MHz] | Limit [MHz] | Verdict |
|---------------|-----------|---------|-----------------|--------------|-------------|---------|
| NTNV          | 11B       | Ant1    | 2412            | 13.055       | ≤26         | PASS    |
|               |           |         | 2442            | 13.190       | ≤26         | PASS    |
|               |           |         | 2472            | 13.138       | ≤26         | PASS    |
|               | 11G       | Ant1    | 2412            | 16.890       | ≤26         | PASS    |
|               |           |         | 2442            | 16.855       | ≤26         | PASS    |
|               |           |         | 2472            | 16.837       | ≤26         | PASS    |
|               | 11N20SISO | Ant1    | 2412            | 18.095       | ≤26         | PASS    |
|               |           |         | 2442            | 18.025       | ≤26         | PASS    |
|               |           |         | 2472            | 17.949       | ≤26         | PASS    |
|               | 11N40SISO | Ant1    | 2422            | 36.176       | 26-40       | PASS    |
|               |           |         | 2442            | 36.228       | 26-40       | PASS    |
|               |           |         | 2462            | 36.254       | 26-40       | PASS    |
| NTLV          | 11B       | Ant1    | 2412            | 13.138       | ≤26         | PASS    |
|               |           |         | 2442            | 13.182       | ≤26         | PASS    |
|               |           |         | 2472            | 13.111       | ≤26         | PASS    |
|               | 11G       | Ant1    | 2412            | 16.717       | ≤26         | PASS    |
|               |           |         | 2442            | 16.842       | ≤26         | PASS    |
|               |           |         | 2472            | 16.851       | ≤26         | PASS    |
|               | 11N20SISO | Ant1    | 2412            | 18.079       | ≤26         | PASS    |
|               |           |         | 2442            | 18.055       | ≤26         | PASS    |
|               |           |         | 2472            | 17.819       | ≤26         | PASS    |
|               | 11N40SISO | Ant1    | 2422            | 36.223       | 26-40       | PASS    |
|               |           |         | 2442            | 36.238       | 26-40       | PASS    |
|               |           |         | 2462            | 36.274       | 26-40       | PASS    |
| NTHV          | 11B       | Ant1    | 2412            | 13.107       | ≤26         | PASS    |
|               |           |         | 2442            | 13.178       | ≤26         | PASS    |
|               |           |         | 2472            | 13.154       | ≤26         | PASS    |
|               | 11G       | Ant1    | 2412            | 16.698       | ≤26         | PASS    |
|               |           |         | 2442            | 16.708       | ≤26         | PASS    |
|               |           |         | 2472            | 16.877       | ≤26         | PASS    |
|               | 11N20SISO | Ant1    | 2412            | 17.970       | ≤26         | PASS    |
|               |           |         | 2442            | 18.067       | ≤26         | PASS    |
|               |           |         | 2472            | 17.872       | ≤26         | PASS    |
|               | 11N40SISO | Ant1    | 2422            | 36.078       | 26-40       | PASS    |
|               |           |         | 2442            | 36.211       | 26-40       | PASS    |
|               |           |         | 2462            | 36.217       | 26-40       | PASS    |

## NTNV 11B Ant1 2412



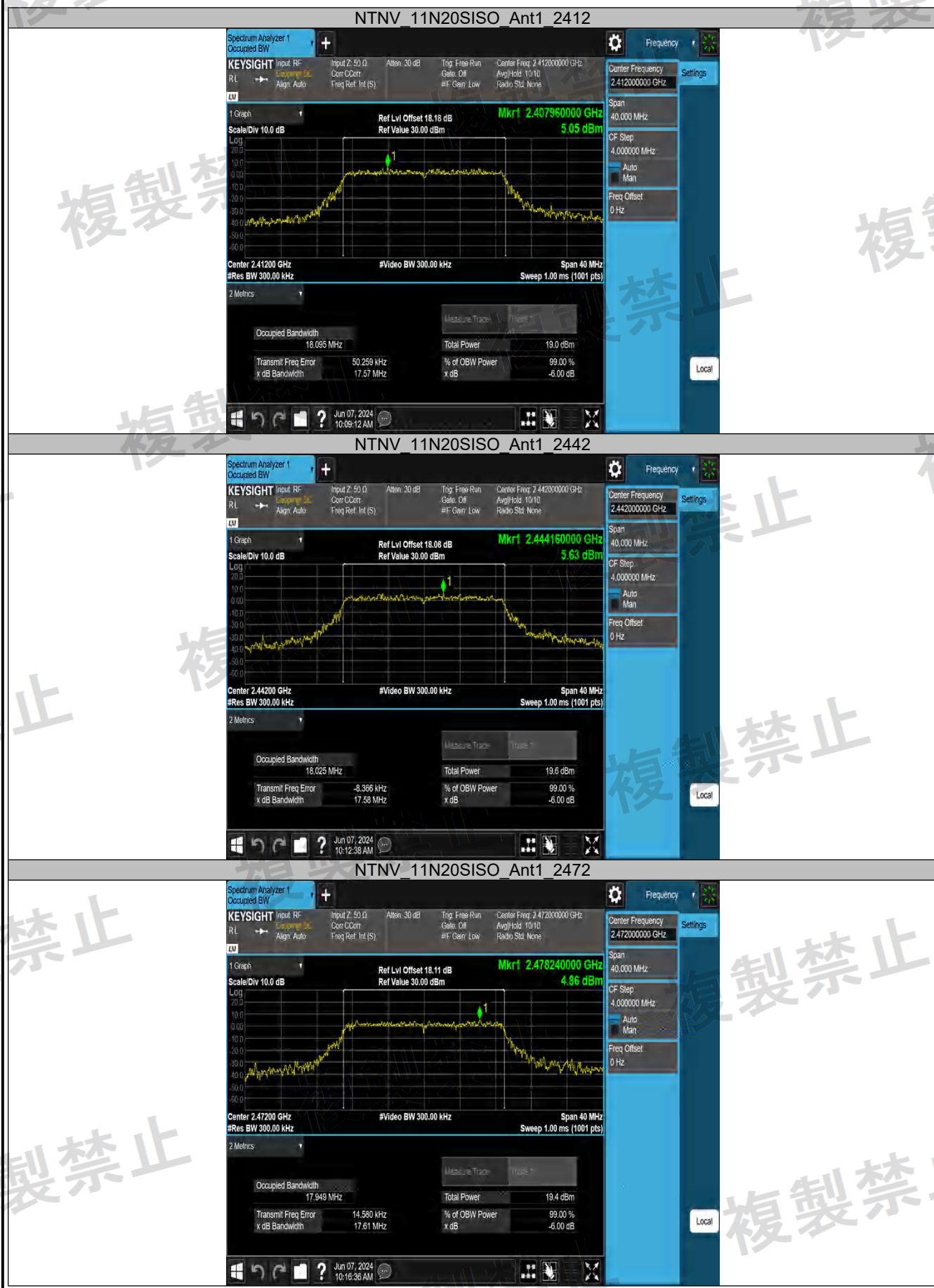
## NTNV 11B Ant1 2442

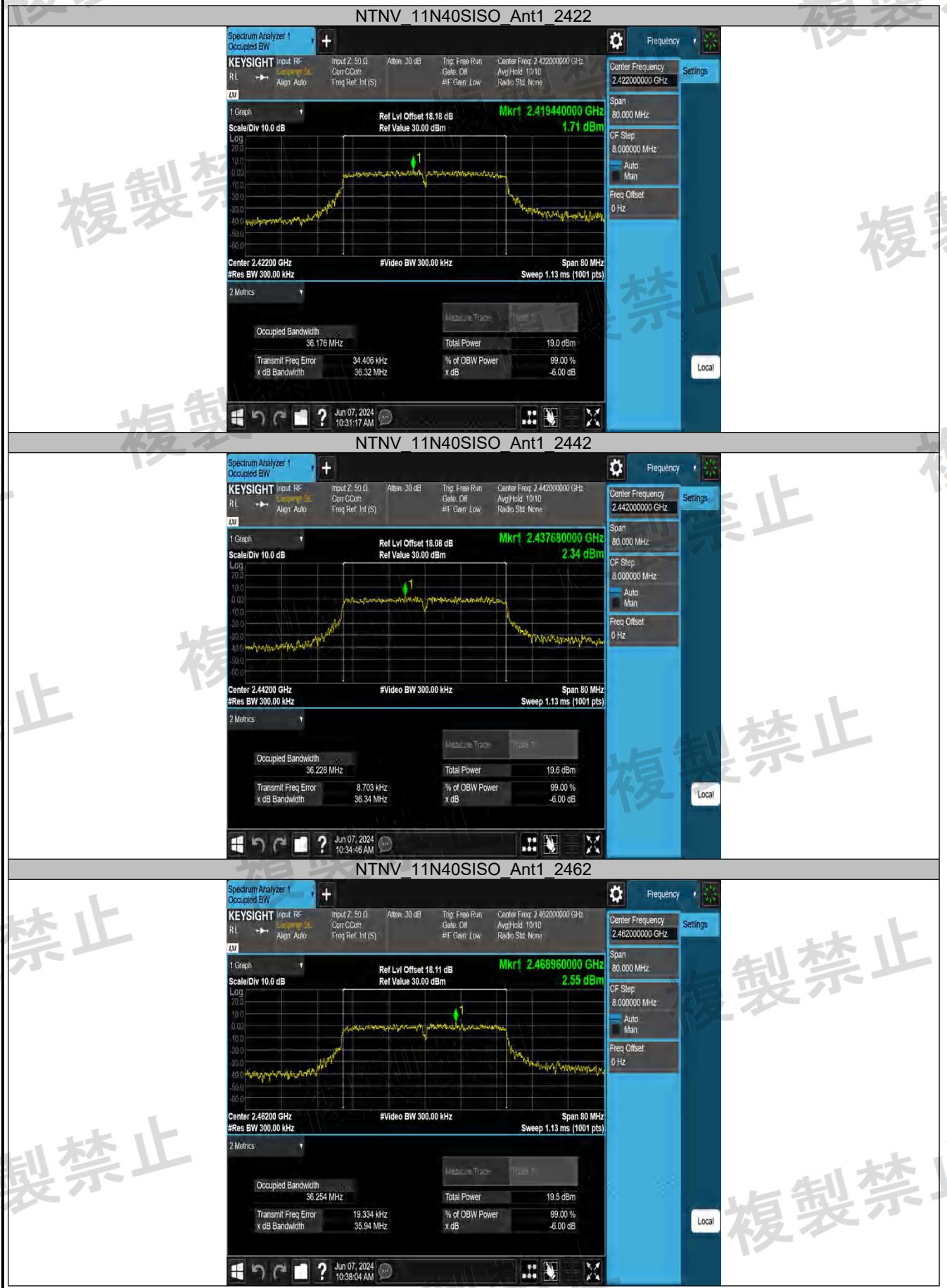


## NTNV 11B Ant1 2472

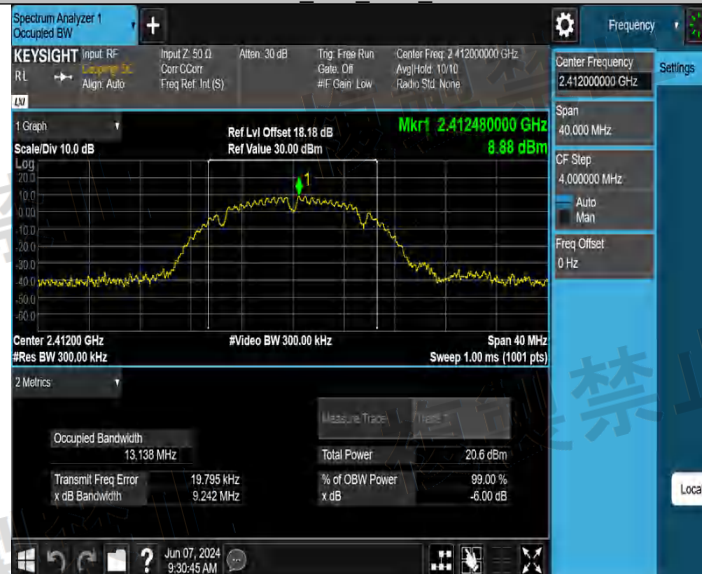




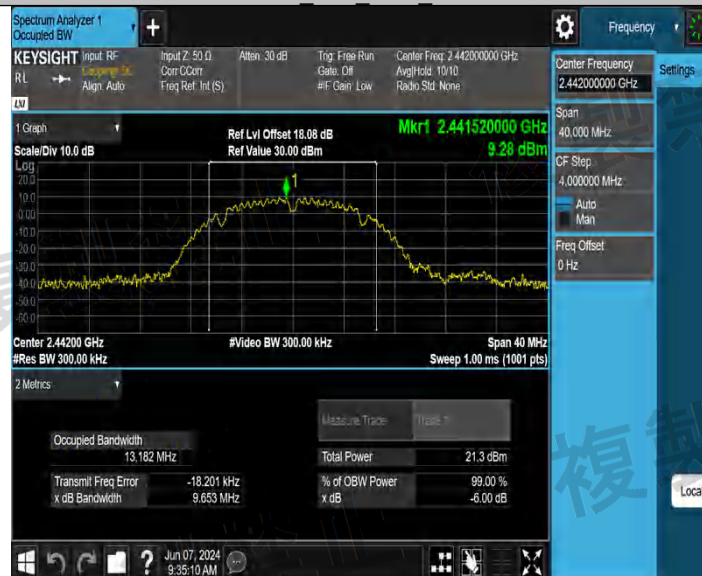




## NTLV\_11B\_Ant1\_2412



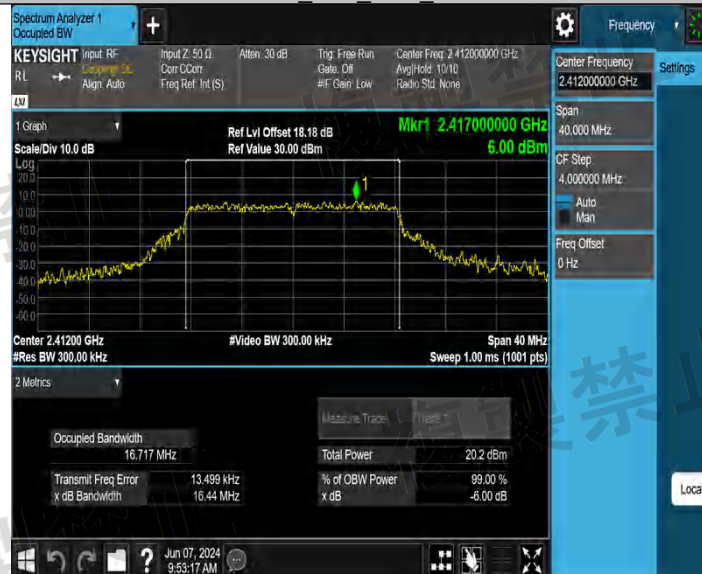
## NTLV\_11B\_Ant1\_2442



## NTLV\_11B\_Ant1\_2472



## NTLV\_11G\_Ant1\_2412



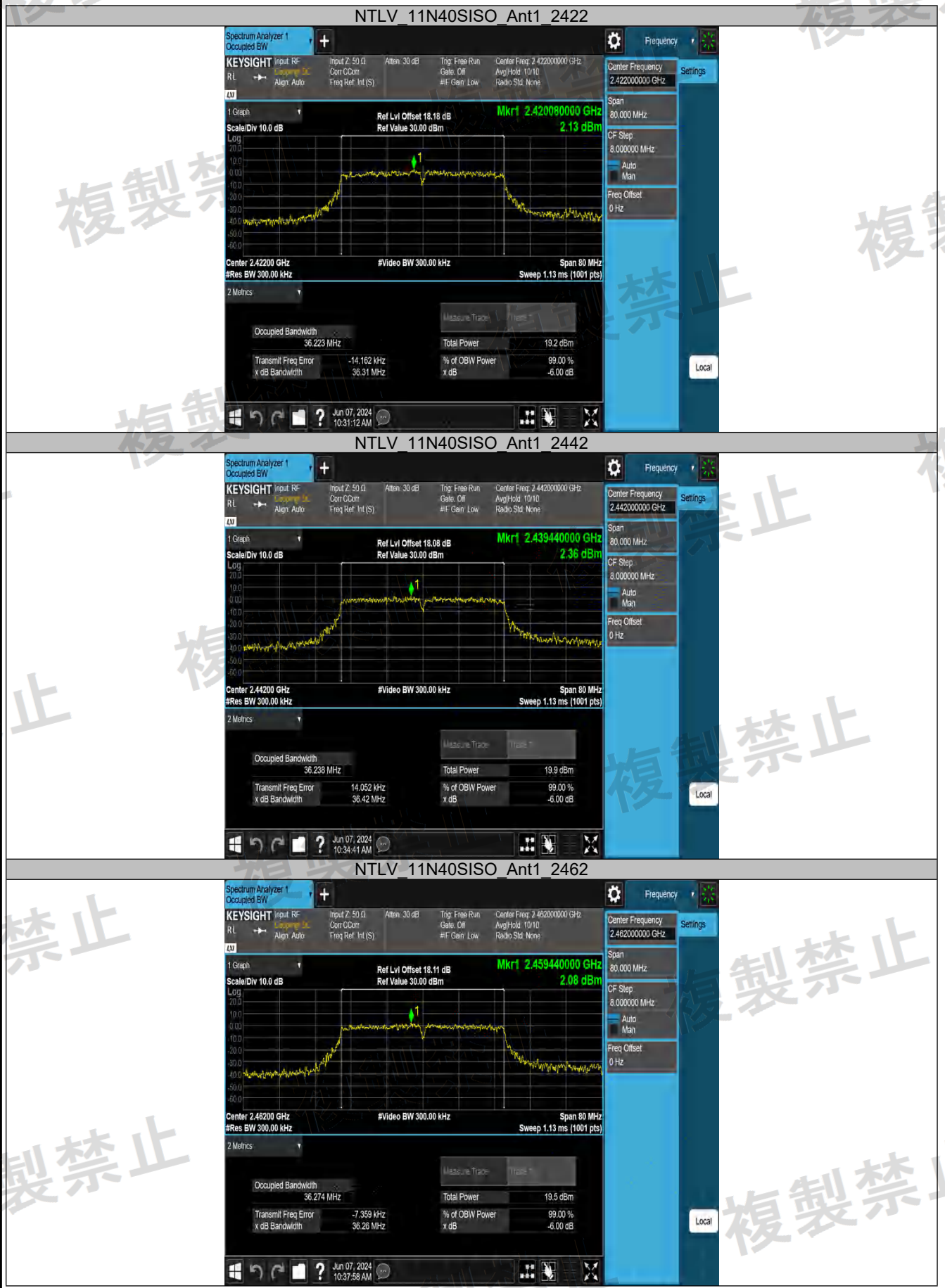
## NTLV\_11G\_Ant1\_2442

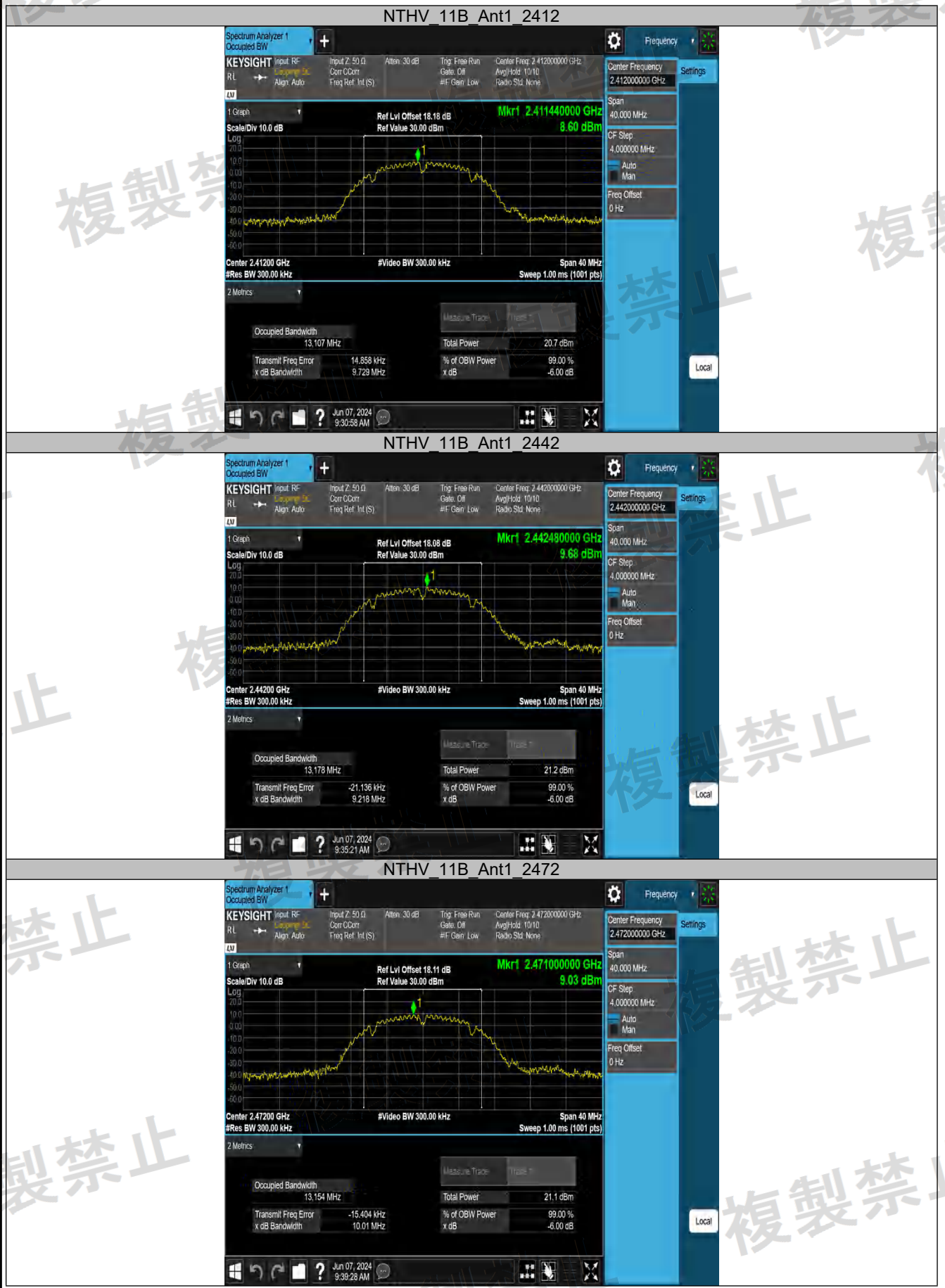


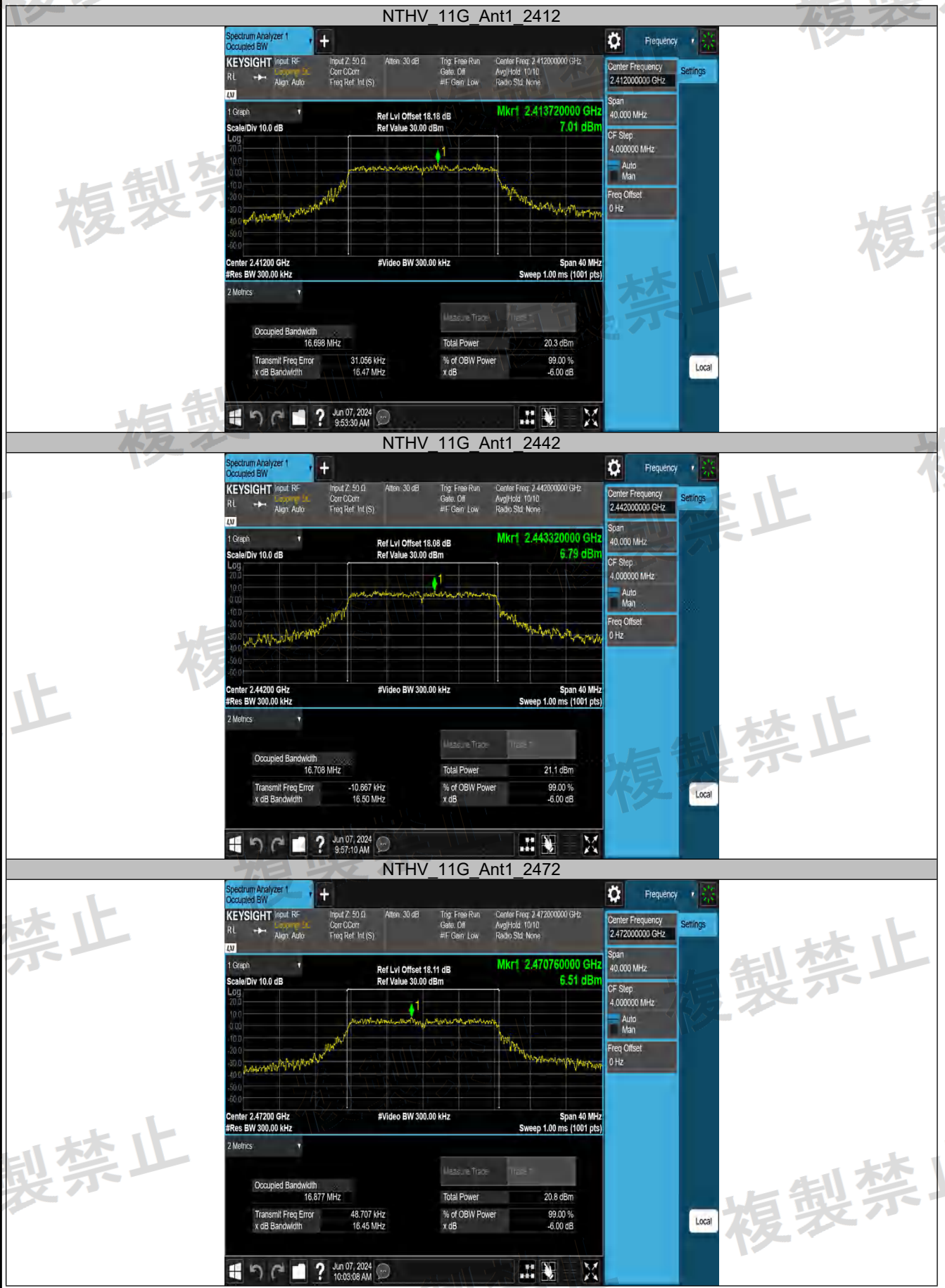
## NTLV\_11G\_Ant1\_2472

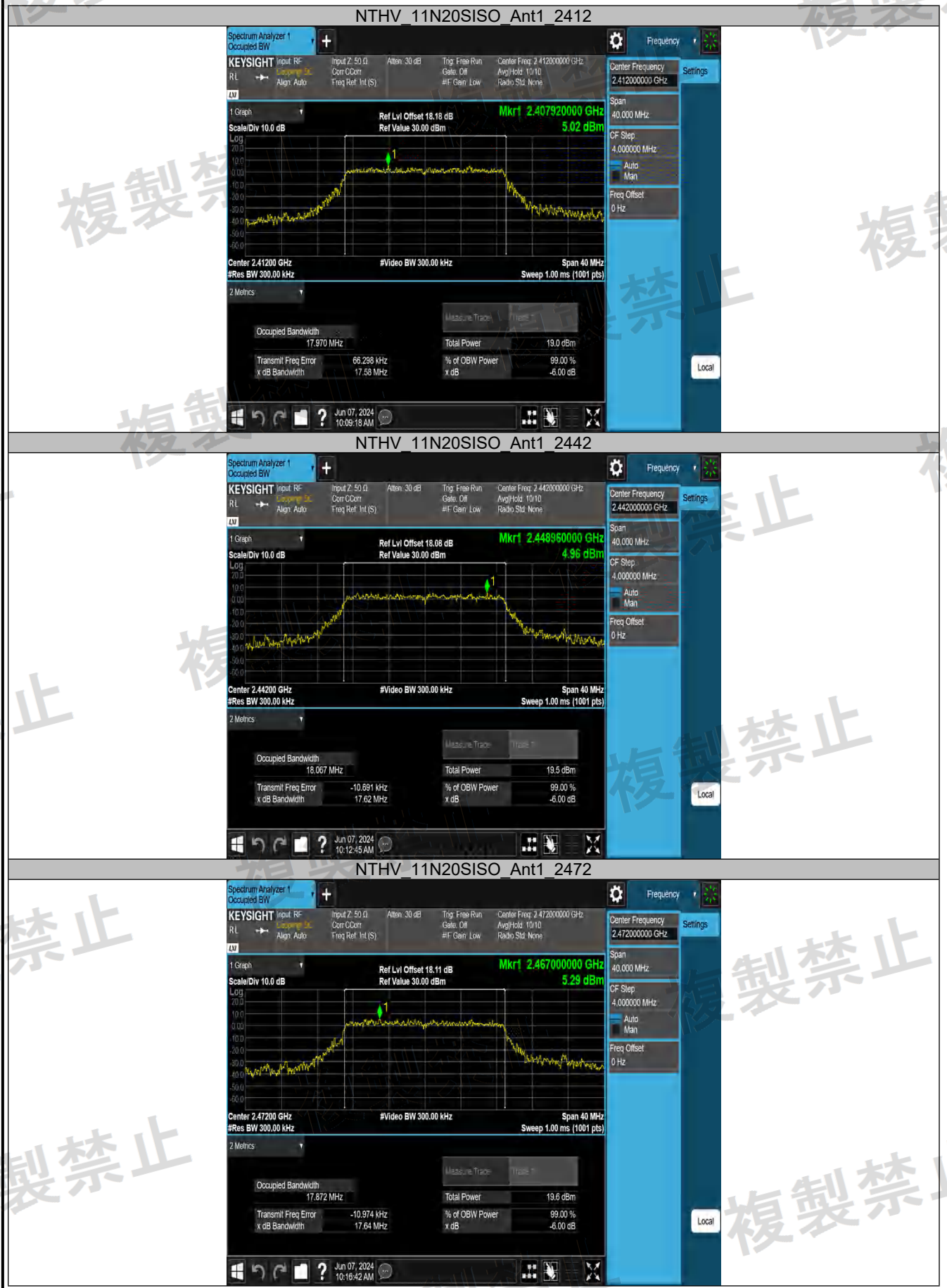










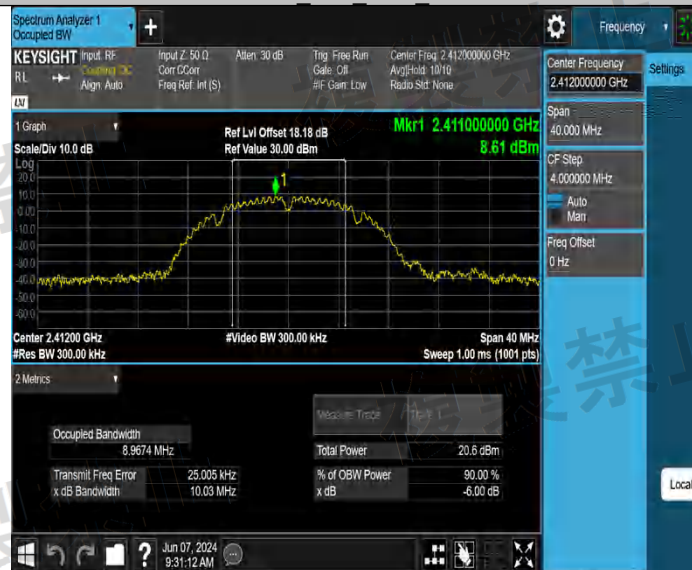




**Appendix A.3: Test Results of Spread Bandwidth (90%)**

| TestCondition | TestMode  | Antenna | Frequency [MHz] | Result [MHz] | Limit [MHz] | Spread Factor | Limit | Verdict |
|---------------|-----------|---------|-----------------|--------------|-------------|---------------|-------|---------|
| NTNV          | 11B       | Ant1    | 2412            | 8.967        | ≥0.5        | 6.521         | >5    | PASS    |
|               |           |         | 2442            | 8.979        | ≥0.5        | 6.530         | >5    | PASS    |
|               |           |         | 2472            | 8.934        | ≥0.5        | 6.497         | >5    | PASS    |
|               | 11G       | Ant1    | 2412            | 14.803       | ≥0.5        | ---           | ---   | PASS    |
|               |           |         | 2442            | 14.772       | ≥0.5        | ---           | ---   | PASS    |
|               |           |         | 2472            | 14.604       | ≥0.5        | ---           | ---   | PASS    |
|               | 11N20SISO | Ant1    | 2412            | 15.886       | ≥0.5        | ---           | ---   | PASS    |
|               |           |         | 2442            | 15.923       | ≥0.5        | ---           | ---   | PASS    |
|               |           |         | 2472            | 15.880       | ≥0.5        | ---           | ---   | PASS    |
|               | 11N40SISO | Ant1    | 2422            | 31.967       | ≥0.5        | ---           | ---   | PASS    |
|               |           |         | 2442            | 31.916       | ≥0.5        | ---           | ---   | PASS    |
|               |           |         | 2462            | 32.086       | ≥0.5        | ---           | ---   | PASS    |
| NTLV          | 11B       | Ant1    | 2412            | 8.991        | ≥0.5        | 6.539         | >5    | PASS    |
|               |           |         | 2442            | 9.023        | ≥0.5        | 6.562         | >5    | PASS    |
|               |           |         | 2472            | 8.997        | ≥0.5        | 6.543         | >5    | PASS    |
|               | 11G       | Ant1    | 2412            | 14.733       | ≥0.5        | ---           | ---   | PASS    |
|               |           |         | 2442            | 14.640       | ≥0.5        | ---           | ---   | PASS    |
|               |           |         | 2472            | 15.024       | ≥0.5        | ---           | ---   | PASS    |
|               | 11N20SISO | Ant1    | 2412            | 15.719       | ≥0.5        | ---           | ---   | PASS    |
|               |           |         | 2442            | 15.773       | ≥0.5        | ---           | ---   | PASS    |
|               |           |         | 2472            | 15.794       | ≥0.5        | ---           | ---   | PASS    |
|               | 11N40SISO | Ant1    | 2422            | 31.580       | ≥0.5        | ---           | ---   | PASS    |
|               |           |         | 2442            | 31.924       | ≥0.5        | ---           | ---   | PASS    |
|               |           |         | 2462            | 32.292       | ≥0.5        | ---           | ---   | PASS    |
| NTHV          | 11B       | Ant1    | 2412            | 8.942        | ≥0.5        | 6.503         | >5    | PASS    |
|               |           |         | 2442            | 8.949        | ≥0.5        | 6.508         | >5    | PASS    |
|               |           |         | 2472            | 8.996        | ≥0.5        | 6.543         | >5    | PASS    |
|               | 11G       | Ant1    | 2412            | 14.772       | ≥0.5        | ---           | ---   | PASS    |
|               |           |         | 2442            | 14.710       | ≥0.5        | ---           | ---   | PASS    |
|               |           |         | 2472            | 14.954       | ≥0.5        | ---           | ---   | PASS    |
|               | 11N20SISO | Ant1    | 2412            | 15.866       | ≥0.5        | ---           | ---   | PASS    |
|               |           |         | 2442            | 15.729       | ≥0.5        | ---           | ---   | PASS    |
|               |           |         | 2472            | 15.899       | ≥0.5        | ---           | ---   | PASS    |
|               | 11N40SISO | Ant1    | 2422            | 32.197       | ≥0.5        | ---           | ---   | PASS    |
|               |           |         | 2442            | 32.125       | ≥0.5        | ---           | ---   | PASS    |
|               |           |         | 2462            | 31.928       | ≥0.5        | ---           | ---   | PASS    |

NTNV 11B Ant1 2412



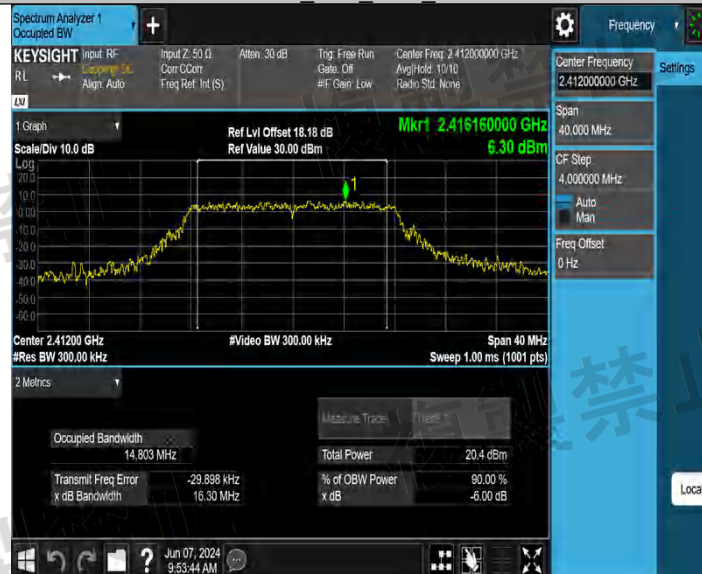
NTNV 11B Ant1 2442



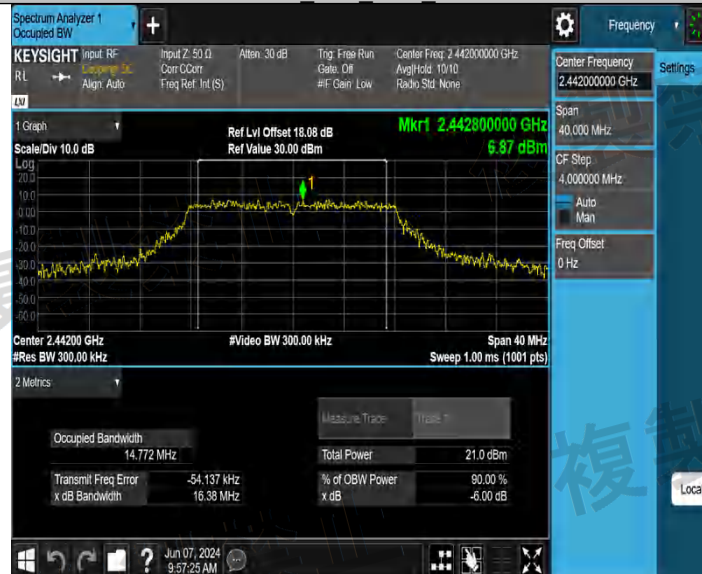
NTNV 11B Ant1 2472



## NTNV 11G\_Ant1\_2412

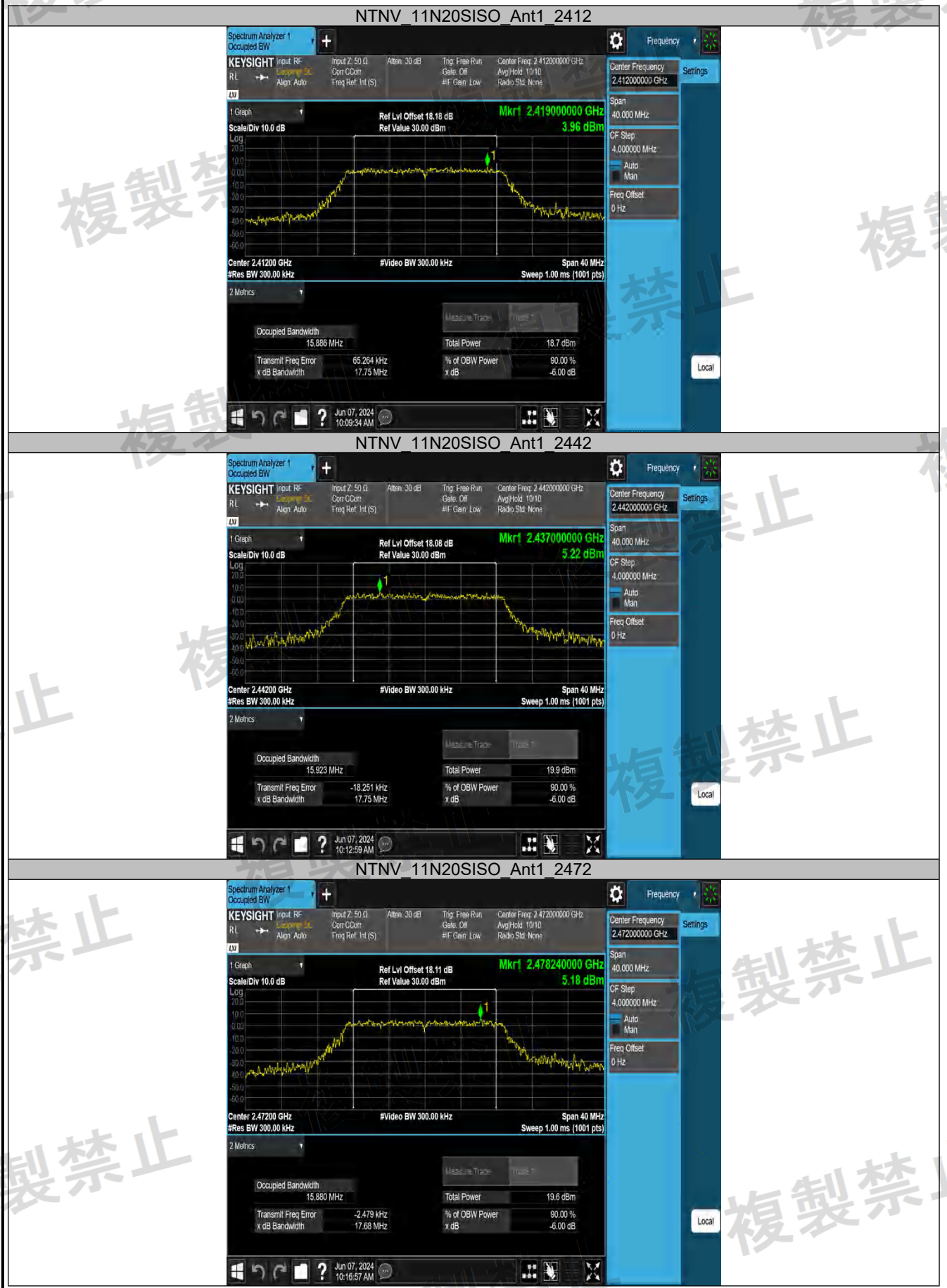


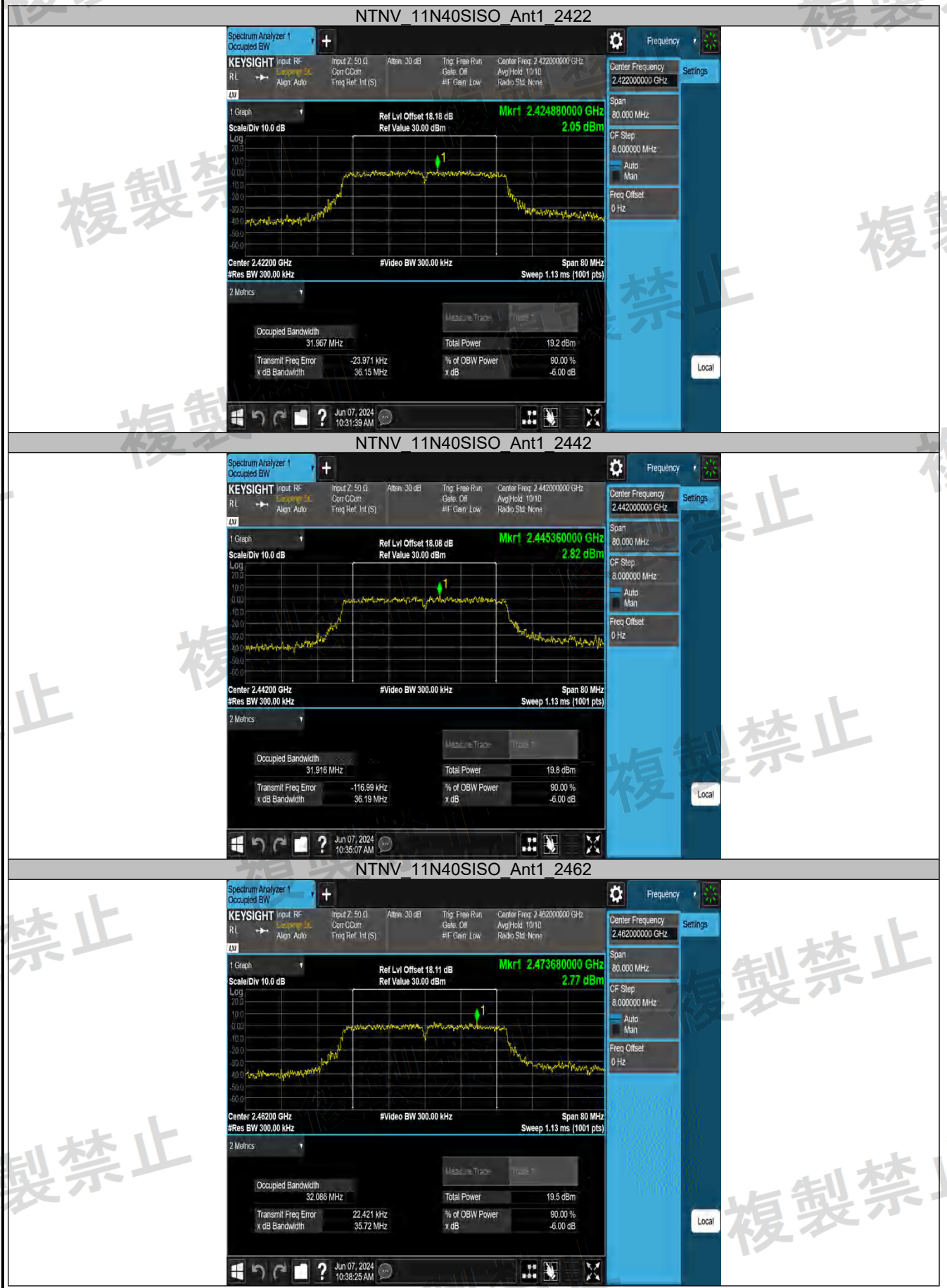
## NTNV 11G\_Ant1\_2442



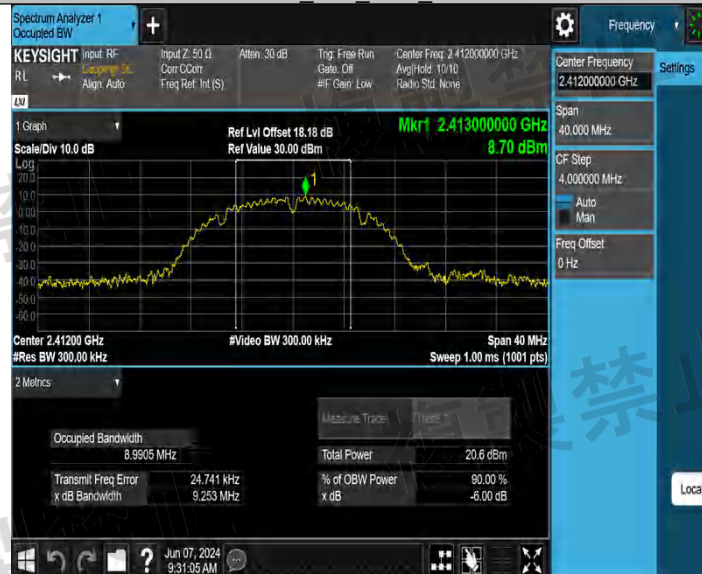
## NTNV 11G\_Ant1\_2472



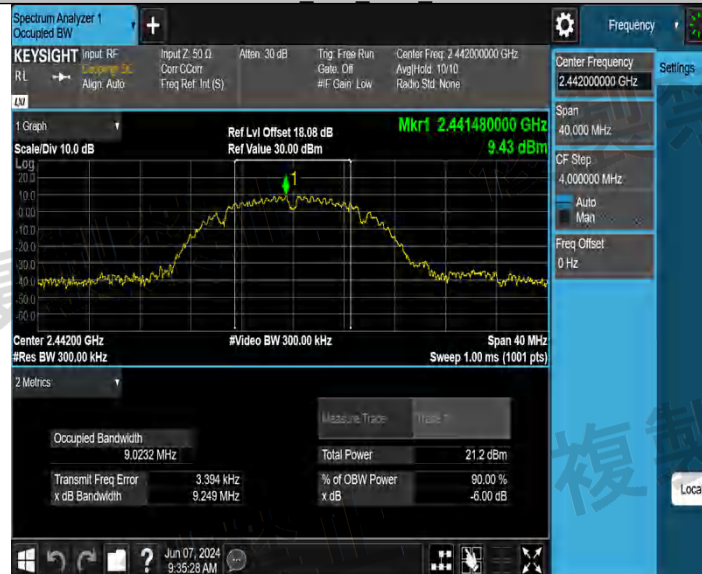




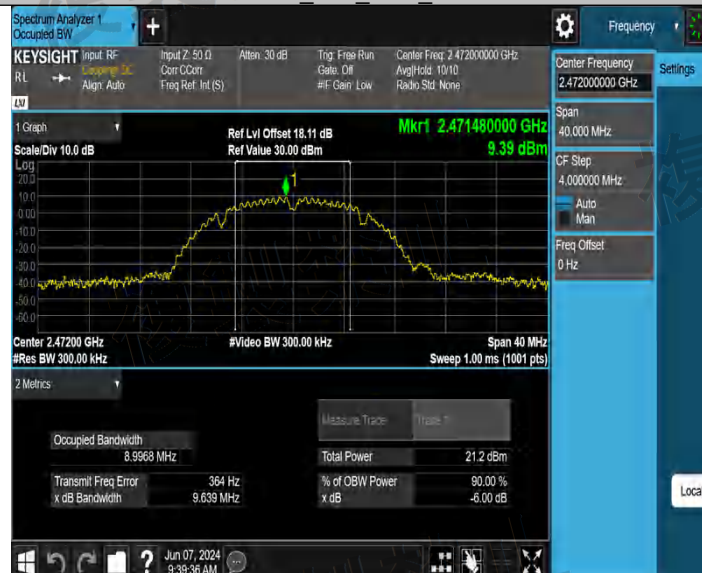
## NTLV\_11B\_Ant1\_2412



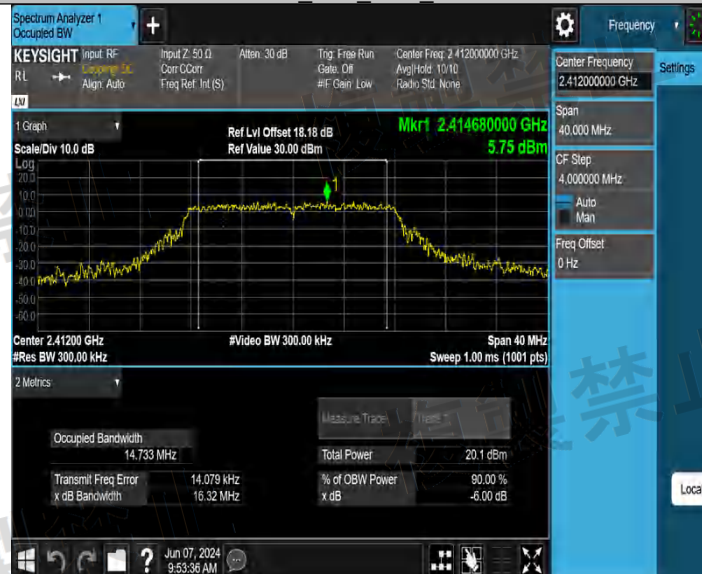
## NTLV\_11B\_Ant1\_2442



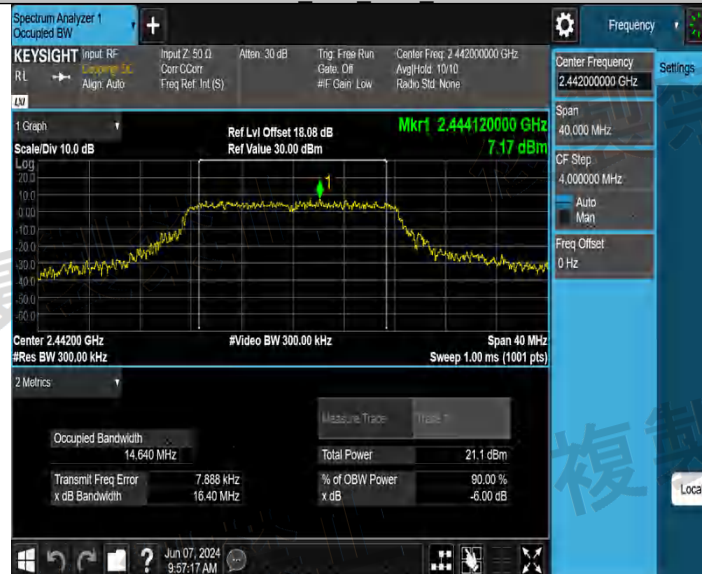
## NTLV\_11B\_Ant1\_2472



## NTLV\_11G\_Ant1\_2412



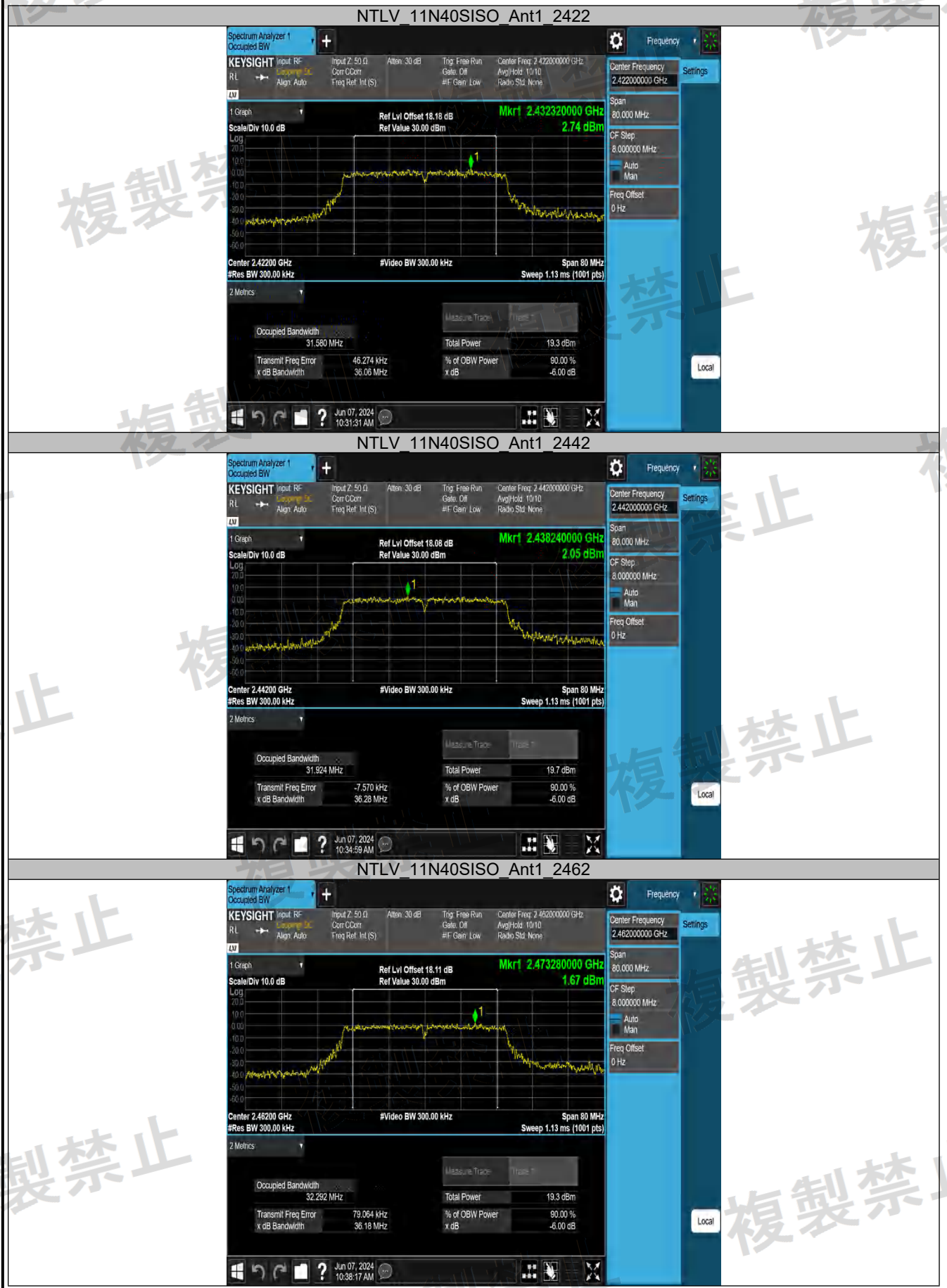
## NTLV\_11G\_Ant1\_2442

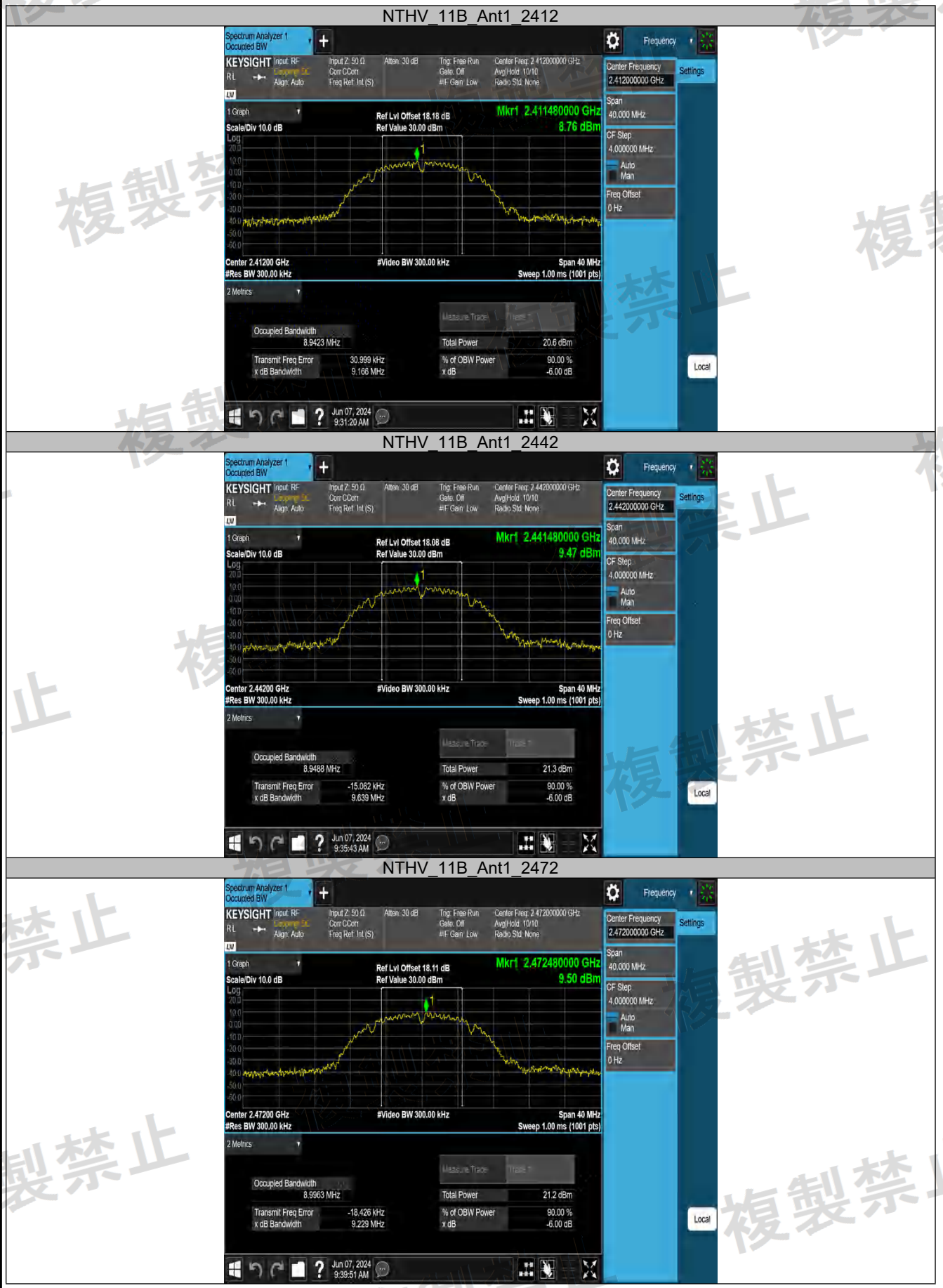


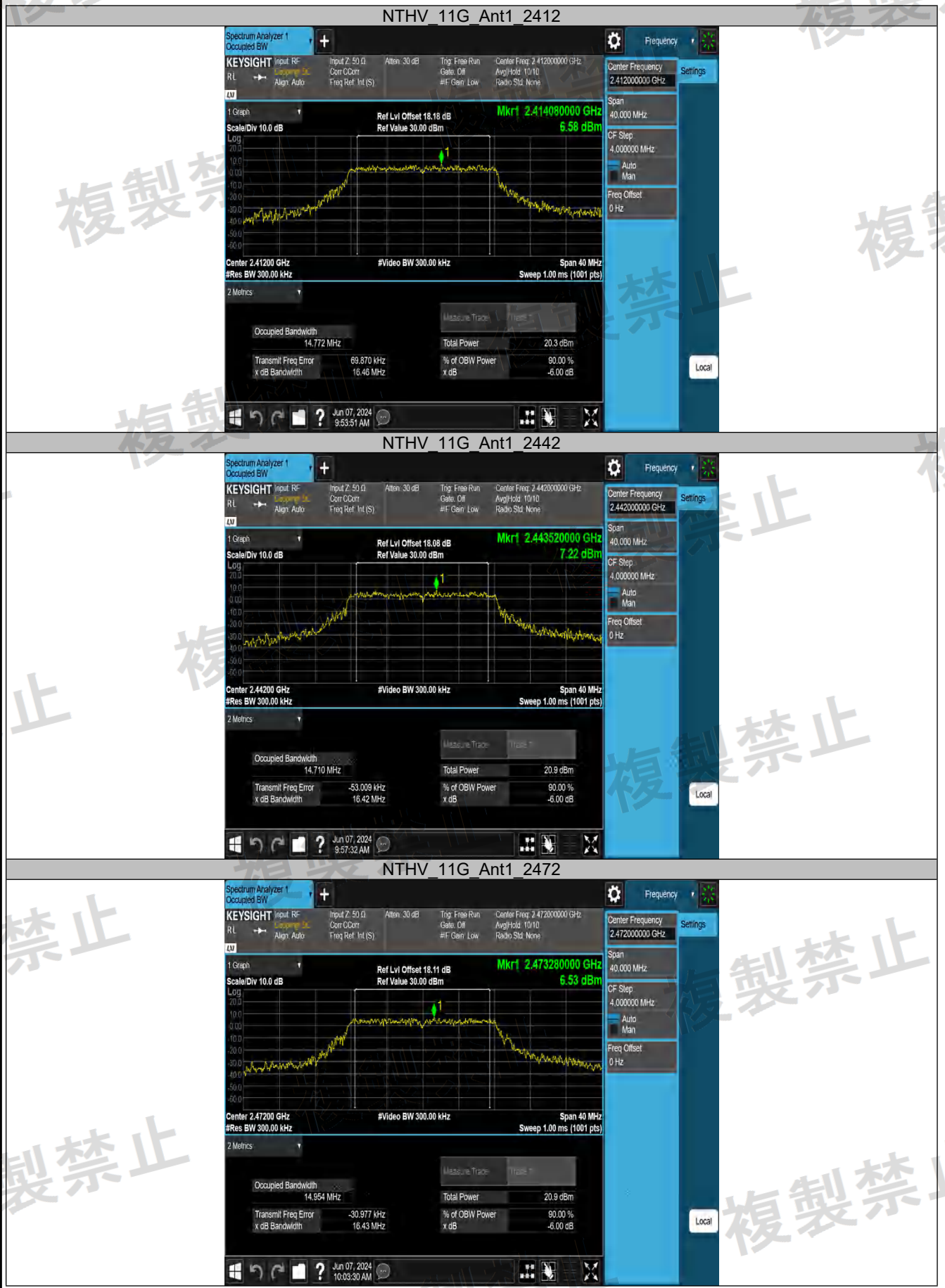
## NTLV\_11G\_Ant1\_2472

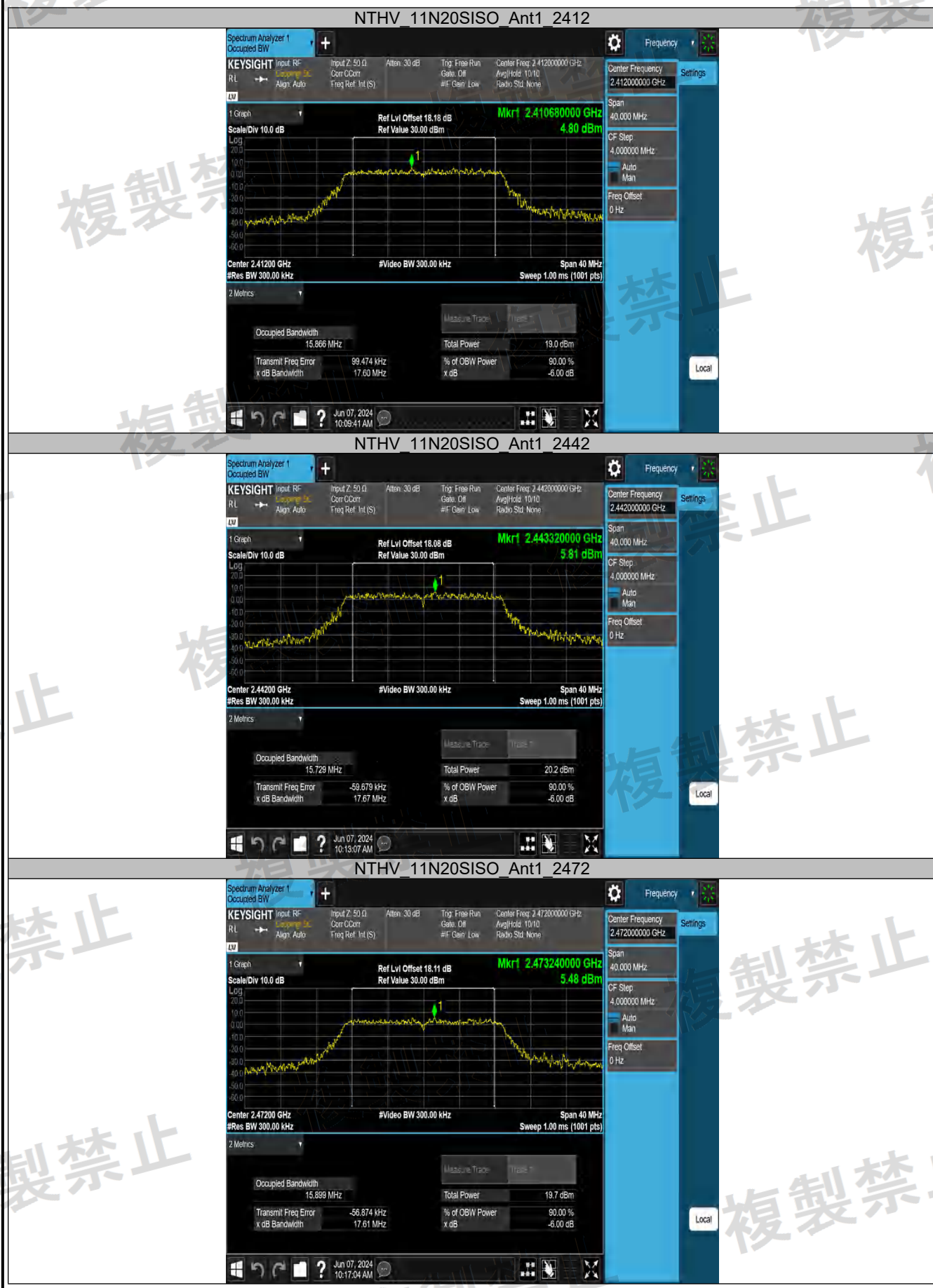














## Appendix A.4: Test Results of Antenna Power

| Antenna Power  |           |         |                 |                  |                 |                |         |
|----------------|-----------|---------|-----------------|------------------|-----------------|----------------|---------|
| Test Condition | Test Mode | Antenna | Frequency [MHz] | Result (dBm/MHz) | Result (mW/MHz) | Limit (mW/MHz) | Verdict |
| NTNV           | 11B       | Ant1    | 2412            | 5.83             | 3.8282          | ≤10            | PASS    |
|                |           |         | 2442            | 6.35             | 4.3152          | ≤10            | PASS    |
|                |           |         | 2472            | 6.05             | 4.0272          | ≤10            | PASS    |
|                | 11G       | Ant1    | 2412            | 2.77             | 1.8923          | ≤10            | PASS    |
|                |           |         | 2442            | 3.46             | 2.2182          | ≤10            | PASS    |
|                |           |         | 2472            | 3.47             | 2.2233          | ≤10            | PASS    |
|                | 11N20SISO | Ant1    | 2412            | 2.30             | 1.6982          | ≤10            | PASS    |
|                |           |         | 2442            | 2.86             | 1.9320          | ≤10            | PASS    |
|                |           |         | 2472            | 2.82             | 1.9143          | ≤10            | PASS    |
|                | 11N40SISO | Ant1    | 2422            | -0.19            | 0.9572          | ≤5             | PASS    |
|                |           |         | 2442            | -0.14            | 0.9683          | ≤5             | PASS    |
|                |           |         | 2462            | 0.10             | 1.0233          | ≤5             | PASS    |
| NTLV           | 11B       | Ant1    | 2412            | 5.75             | 3.7584          | ≤10            | PASS    |
|                |           |         | 2442            | 6.37             | 4.3351          | ≤10            | PASS    |
|                |           |         | 2472            | 6.04             | 4.0179          | ≤10            | PASS    |
|                | 11G       | Ant1    | 2412            | 2.86             | 1.9320          | ≤10            | PASS    |
|                |           |         | 2442            | 3.23             | 2.1038          | ≤10            | PASS    |
|                |           |         | 2472            | 3.37             | 2.1727          | ≤10            | PASS    |
|                | 11N20SISO | Ant1    | 2412            | 2.55             | 1.7989          | ≤10            | PASS    |
|                |           |         | 2442            | 2.73             | 1.8750          | ≤10            | PASS    |
|                |           |         | 2472            | 2.93             | 1.9634          | ≤10            | PASS    |
|                | 11N40SISO | Ant1    | 2422            | -0.22            | 0.9506          | ≤5             | PASS    |
|                |           |         | 2442            | 0.14             | 1.0328          | ≤5             | PASS    |
|                |           |         | 2462            | 0.07             | 1.0162          | ≤5             | PASS    |
| NTHV           | 11B       | Ant1    | 2412            | 5.86             | 3.8548          | ≤10            | PASS    |
|                |           |         | 2442            | 6.47             | 4.4361          | ≤10            | PASS    |
|                |           |         | 2472            | 6.04             | 4.0179          | ≤10            | PASS    |
|                | 11G       | Ant1    | 2412            | 2.78             | 1.8967          | ≤10            | PASS    |
|                |           |         | 2442            | 3.47             | 2.2233          | ≤10            | PASS    |
|                |           |         | 2472            | 3.37             | 2.1727          | ≤10            | PASS    |
|                | 11N20SISO | Ant1    | 2412            | 2.26             | 1.6827          | ≤10            | PASS    |
|                |           |         | 2442            | 2.85             | 1.9275          | ≤10            | PASS    |
|                |           |         | 2472            | 3.00             | 1.9953          | ≤10            | PASS    |
|                | 11N40SISO | Ant1    | 2422            | -0.08            | 0.9817          | ≤5             | PASS    |
|                |           |         | 2442            | -0.01            | 0.9977          | ≤5             | PASS    |
|                |           |         | 2462            | 0.19             | 1.0447          | ≤5             | PASS    |

| Tolerance      |           |         |                 |                |                     |            |           |         |
|----------------|-----------|---------|-----------------|----------------|---------------------|------------|-----------|---------|
| Test Condition | Test Mode | Antenna | Frequency [MHz] | Power (mW/MHz) | RatedPower (mW/MHz) | Result (%) | Limit (%) | Verdict |
| NTNV           | 11B       | Ant1    | 2412            | 3.8282         | 10                  | -61.72     | +20       | PASS    |
|                |           |         | 2442            | 4.3152         | 10                  | -56.85     | +20       | PASS    |
|                |           |         | 2472            | 4.0272         | 10                  | -59.73     | +20       | PASS    |
|                | 11G       | Ant1    | 2412            | 1.8923         | 8                   | -76.35     | +20       | PASS    |
|                |           |         | 2442            | 2.2182         | 8                   | -72.27     | +20       | PASS    |
|                |           |         | 2472            | 2.2233         | 8                   | -72.21     | +20       | PASS    |
|                | 11N20SISO | Ant1    | 2412            | 1.6982         | 8                   | -78.77     | +20       | PASS    |
|                |           |         | 2442            | 1.9320         | 8                   | -75.85     | +20       | PASS    |
|                |           |         | 2472            | 1.9143         | 8                   | -76.07     | +20       | PASS    |
|                | 11N40SISO | Ant1    | 2422            | 0.9572         | 5                   | -80.86     | +20       | PASS    |
|                |           |         | 2442            | 0.9683         | 5                   | -80.63     | +20       | PASS    |
|                |           |         | 2462            | 1.0233         | 5                   | -79.53     | +20       | PASS    |
| NTLV           | 11B       | Ant1    | 2412            | 3.7584         | 10                  | -62.42     | +20       | PASS    |
|                |           |         | 2442            | 4.3351         | 10                  | -56.65     | +20       | PASS    |
|                |           |         | 2472            | 4.0179         | 10                  | -59.82     | +20       | PASS    |
|                | 11G       | Ant1    | 2412            | 1.9320         | 8                   | -75.85     | +20       | PASS    |
|                |           |         | 2442            | 2.1038         | 8                   | -73.70     | +20       | PASS    |
|                |           |         | 2472            | 2.1727         | 8                   | -72.84     | +20       | PASS    |
|                | 11N20SISO | Ant1    | 2412            | 1.7989         | 8                   | -77.51     | +20       | PASS    |
|                |           |         | 2442            | 1.8750         | 8                   | -76.56     | +20       | PASS    |
|                |           |         | 2472            | 1.9634         | 8                   | -75.46     | +20       | PASS    |
|                | 11N40SISO | Ant1    | 2422            | 0.9506         | 5                   | -80.99     | +20       | PASS    |
|                |           |         | 2442            | 1.0328         | 5                   | -79.34     | +20       | PASS    |
|                |           |         | 2462            | 1.0162         | 5                   | -79.68     | +20       | PASS    |
| NTHV           | 11B       | Ant1    | 2412            | 3.8548         | 10                  | -61.45     | +20       | PASS    |
|                |           |         | 2442            | 4.4361         | 10                  | -55.64     | +20       | PASS    |
|                |           |         | 2472            | 4.0179         | 10                  | -59.82     | +20       | PASS    |
|                | 11G       | Ant1    | 2412            | 1.8967         | 8                   | -76.29     | +20       | PASS    |
|                |           |         | 2442            | 2.2233         | 8                   | -72.21     | +20       | PASS    |
|                |           |         | 2472            | 2.1727         | 8                   | -72.84     | +20       | PASS    |
|                | 11N20SISO | Ant1    | 2412            | 1.6827         | 8                   | -78.97     | +20       | PASS    |
|                |           |         | 2442            | 1.9275         | 8                   | -75.91     | +20       | PASS    |
|                |           |         | 2472            | 1.9953         | 8                   | -75.06     | +20       | PASS    |
|                | 11N40SISO | Ant1    | 2422            | 0.9817         | 5                   | -80.37     | +20       | PASS    |
|                |           |         | 2442            | 0.9977         | 5                   | -80.05     | +20       | PASS    |
|                |           |         | 2462            | 1.0447         | 5                   | -79.11     | +20       | PASS    |

**Appendix A.5: Test Results of Spurious Emissions for Transmitter**

| TestCondition | TestMode  | Antenna | Frequency [MHz] | Freq.Range [MHz] | Freq. [MHz] | Result [dBm] | Limit [dBm] | Result [μW] | Limit [μW] | Verdict |
|---------------|-----------|---------|-----------------|------------------|-------------|--------------|-------------|-------------|------------|---------|
| NTNV          | 11B       | Ant1    | 2412            | 30~500           | 482.61      | -58.62       | ≤-26        | 0.00137     | ≤2.5       | PASS    |
|               |           |         |                 | 500~1000         | 889.25      | -58.10       | ≤-26        | 0.00155     | ≤2.5       | PASS    |
|               |           |         |                 | 1000~2387        | 2386.31     | -48.01       | ≤-26        | 0.01581     | ≤2.5       | PASS    |
|               |           |         |                 | 2387~2400        | 2396.93     | -40.60       | ≤-16        | 0.08710     | ≤25        | PASS    |
|               |           |         |                 | 2483.5~2496.5    | 2488.04     | -45.40       | ≤-16        | 0.02884     | ≤25        | PASS    |
|               |           |         |                 | 2496.5~13000     | 4824.08     | -48.35       | ≤-26        | 0.01462     | ≤2.5       | PASS    |
|               |           |         | 2442            | 30~500           | 482.96      | -58.81       | ≤-26        | 0.00132     | ≤2.5       | PASS    |
|               |           |         |                 | 500~1000         | 870.38      | -58.25       | ≤-26        | 0.00150     | ≤2.5       | PASS    |
|               |           |         |                 | 1000~2387        | 2383.53     | -50.67       | ≤-26        | 0.00857     | ≤2.5       | PASS    |
|               |           |         |                 | 2387~2400        | 2399.94     | -45.39       | ≤-16        | 0.02891     | ≤25        | PASS    |
|               |           |         |                 | 2483.5~2496.5    | 2494.59     | -45.12       | ≤-16        | 0.03076     | ≤25        | PASS    |
|               |           |         |                 | 2496.5~13000     | 2499.13     | -46.80       | ≤-26        | 0.02089     | ≤2.5       | PASS    |
|               |           |         | 2472            | 30~500           | 443.37      | -58.81       | ≤-26        | 0.00132     | ≤2.5       | PASS    |
|               |           |         |                 | 500~1000         | 907.38      | -58.11       | ≤-26        | 0.00155     | ≤2.5       | PASS    |
|               |           |         |                 | 1000~2387        | 2381.80     | -52.15       | ≤-26        | 0.00610     | ≤2.5       | PASS    |
|               |           |         |                 | 2387~2400        | 2399.82     | -45.59       | ≤-16        | 0.02761     | ≤25        | PASS    |
|               |           |         |                 | 2483.5~2496.5    | 2487.14     | -37.63       | ≤-16        | 0.17258     | ≤25        | PASS    |
|               |           |         |                 | 2496.5~13000     | 2497.55     | -44.37       | ≤-26        | 0.03656     | ≤2.5       | PASS    |
|               | 11G       | Ant1    | 2412            | 30~500           | 430.56      | -58.78       | ≤-26        | 0.00132     | ≤2.5       | PASS    |
|               |           |         |                 | 500~1000         | 883.88      | -58.27       | ≤-26        | 0.00149     | ≤2.5       | PASS    |
|               |           |         |                 | 1000~2387        | 2387.00     | -46.88       | ≤-26        | 0.02051     | ≤2.5       | PASS    |
|               |           |         |                 | 2387~2400        | 2399.99     | -30.83       | ≤-16        | 0.82604     | ≤25        | PASS    |
|               |           |         |                 | 2483.5~2496.5    | 2487.77     | -45.52       | ≤-16        | 0.02805     | ≤25        | PASS    |
|               |           |         |                 | 2496.5~13000     | 2513.31     | -47.95       | ≤-26        | 0.01603     | ≤2.5       | PASS    |
|               |           |         | 2442            | 30~500           | 463.58      | -58.92       | ≤-26        | 0.00128     | ≤2.5       | PASS    |
|               |           |         |                 | 500~1000         | 856.88      | -58.21       | ≤-26        | 0.00151     | ≤2.5       | PASS    |
|               |           |         |                 | 1000~2387        | 2380.07     | -51.02       | ≤-26        | 0.00791     | ≤2.5       | PASS    |
|               |           |         |                 | 2387~2400        | 2399.88     | -45.26       | ≤-16        | 0.02979     | ≤25        | PASS    |
|               |           |         |                 | 2483.5~2496.5    | 2486.67     | -45.06       | ≤-16        | 0.03119     | ≤25        | PASS    |
|               |           |         |                 | 2496.5~13000     | 2522.76     | -47.41       | ≤-26        | 0.01816     | ≤2.5       | PASS    |
|               |           |         | 2472            | 30~500           | 454.29      | -58.92       | ≤-26        | 0.00128     | ≤2.5       | PASS    |
|               |           |         |                 | 500~1000         | 931.25      | -58.44       | ≤-26        | 0.00143     | ≤2.5       | PASS    |
|               |           |         |                 | 1000~2387        | 2384.23     | -52.14       | ≤-26        | 0.00611     | ≤2.5       | PASS    |
|               |           |         |                 | 2387~2400        | 2399.95     | -45.85       | ≤-16        | 0.02600     | ≤25        | PASS    |
|               |           |         |                 | 2483.5~2496.5    | 2483.50     | -24.48       | ≤-16        | 3.56451     | ≤25        | PASS    |
|               |           |         |                 | 2496.5~13000     | 2500.18     | -42.66       | ≤-26        | 0.05420     | ≤2.5       | PASS    |
|               | 11N20SISO | Ant1    | 2412            | 30~500           | 496.59      | -58.86       | ≤-26        | 0.00130     | ≤2.5       | PASS    |
|               |           |         |                 | 500~1000         | 893.63      | -58.22       | ≤-26        | 0.00151     | ≤2.5       | PASS    |
|               |           |         |                 | 1000~2387        | 2386.65     | -46.43       | ≤-26        | 0.02275     | ≤2.5       | PASS    |
|               |           |         |                 | 2387~2400        | 2400.00     | -30.29       | ≤-16        | 0.93541     | ≤25        | PASS    |
|               |           |         |                 | 2483.5~2496.5    | 2489.16     | -45.22       | ≤-16        | 0.03006     | ≤25        | PASS    |
|               |           |         |                 | 2496.5~13000     | 2498.60     | -47.72       | ≤-26        | 0.01690     | ≤2.5       | PASS    |
|               |           |         | 2442            | 30~500           | 478.85      | -58.83       | ≤-26        | 0.00131     | ≤2.5       | PASS    |
|               |           |         |                 | 500~1000         | 884.63      | -58.24       | ≤-26        | 0.00150     | ≤2.5       | PASS    |
|               |           |         |                 | 1000~2387        | 2385.27     | -50.86       | ≤-26        | 0.00820     | ≤2.5       | PASS    |
|               |           |         |                 | 2387~2400        | 2399.99     | -44.96       | ≤-16        | 0.03192     | ≤25        | PASS    |
|               |           |         |                 | 2483.5~2496.5    | 2483.60     | -44.22       | ≤-16        | 0.03784     | ≤25        | PASS    |
|               |           |         |                 | 2496.5~13000     | 2541.67     | -46.48       | ≤-26        | 0.02249     | ≤2.5       | PASS    |
|               |           |         | 2472            | 30~500           | 474.62      | -58.35       | ≤-26        | 0.00146     | ≤2.5       | PASS    |
|               |           |         |                 | 500~1000         | 875.75      | -58.02       | ≤-26        | 0.00158     | ≤2.5       | PASS    |
|               |           |         |                 | 1000~2387        | 2384.57     | -51.51       | ≤-26        | 0.00706     | ≤2.5       | PASS    |
|               |           |         |                 | 2387~2400        | 2400.00     | -45.13       | ≤-16        | 0.03069     | ≤25        | PASS    |
|               |           |         |                 | 2483.5~2496.5    | 2483.51     | -24.70       | ≤-16        | 3.38844     | ≤25        | PASS    |
|               |           |         |                 | 2496.5~13000     | 2496.50     | -39.04       | ≤-26        | 0.12474     | ≤2.5       | PASS    |
|               | 11N40SISO | Ant1    | 2422            | 30~500           | 30.35       | -45.68       | ≤-26        | 0.02704     | ≤2.5       | PASS    |
|               |           |         |                 | 500~1000         | 824.13      | -58.32       | ≤-26        | 0.00147     | ≤2.5       | PASS    |
|               |           |         |                 | 1000~2387        | 2387.00     | -44.39       | ≤-26        | 0.03639     | ≤2.5       | PASS    |
|               |           |         |                 | 2387~2400        | 2400.00     | -29.61       | ≤-16        | 1.09396     | ≤25        | PASS    |
|               |           |         |                 | 2483.5~2496.5    | 2485.62     | -44.80       | ≤-16        | 0.03311     | ≤25        | PASS    |
|               |           |         |                 | 2496.5~13000     | 2497.03     | -47.55       | ≤-26        | 0.01758     | ≤2.5       | PASS    |
|               |           |         | 2442            | 30~500           | 30.82       | -44.90       | ≤-26        | 0.03236     | ≤2.5       | PASS    |
|               |           |         |                 | 500~1000         | 912.38      | -58.34       | ≤-26        | 0.00147     | ≤2.5       | PASS    |
|               |           |         |                 | 1000~2387        | 2385.61     | -47.42       | ≤-26        | 0.01811     | ≤2.5       | PASS    |
|               |           |         |                 | 2387~2400        | 2399.78     | -42.70       | ≤-16        | 0.05370     | ≤25        | PASS    |
|               |           |         |                 | 2483.5~2496.5    | 2483.80     | -37.90       | ≤-16        | 0.16218     | ≤25        | PASS    |
|               |           |         |                 | 2496.5~13000     | 2501.23     | -43.09       | ≤-26        | 0.04909     | ≤2.5       | PASS    |
|               |           |         | 2462            | 30~500           | 30.82       | -44.44       | ≤-26        | 0.03597     | ≤2.5       | PASS    |
|               |           |         |                 | 500~1000         | 835.38      | -58.33       | ≤-26        | 0.00147     | ≤2.5       | PASS    |
|               |           |         |                 | 1000~2387        | 2385.61     | -51.69       | ≤-26        | 0.00678     | ≤2.5       | PASS    |
|               |           |         |                 | 2387~2400        | 2399.94     | -44.94       | ≤-16        | 0.03206     | ≤25        | PASS    |
|               |           |         |                 | 2483.5~2496.5    | 2483.52     | -26.14       | ≤-16        | 2.43220     | ≤25        | PASS    |
|               |           |         |                 | 2496.5~13000     | 2498.08     | -30.36       | ≤-26        | 0.92045     | ≤2.5       | PASS    |
| NTLV          | 11B       | Ant1    | 2412            | 30~500           | 466.87      | -58.75       | ≤-26        | 0.00133     | ≤2.5       | PASS    |
|               |           |         |                 | 500~1000         | 909.00      | -58.22       | ≤-26        | 0.00151     | ≤2.5       | PASS    |
|               |           |         |                 | 1000~2387        | 2386.65     | -48.09       | ≤-26        | 0.01552     | ≤2.5       | PASS    |
|               |           |         |                 | 2387~2400        | 2396.85     | -40.47       | ≤-16        | 0.08974     | ≤25        | PASS    |
|               |           |         |                 | 2483.5~2496.5    | 2484.96     | -45.49       | ≤-16        | 0.02825     | ≤25        | PASS    |
|               |           |         |                 | 2496.5~13000     | 3732.24     | -48.56       | ≤-26        | 0.01393     | ≤2.5       | PASS    |
|               |           |         | 2442            | 30~500           | 465.69      | -58.75       | ≤-26        | 0.00133     | ≤2.5       | PASS    |
|               |           |         |                 | 500~1000         | 912.75      | -58.25       | ≤-26        | 0.00150     | ≤2.5       | PASS    |
|               |           |         |                 | 1000~2387        | 2380.07     | -51.53       | ≤-26        | 0.00703     | ≤2.5       | PASS    |
|               |           |         |                 | 2387~2400        | 2399.97     | -45.36       | ≤-16        | 0.02911     | ≤25        | PASS    |
|               |           |         |                 | 2483.5~2496.5    | 2486.22     | -45.10       | ≤-16        | 0.03090     | ≤25        | PASS    |
|               |           |         |                 | 2496.5~13000     | 2499.65     | -47.02       | ≤-26        | 0.01986     | ≤2.5       | PASS    |
|               |           |         | 2472            | 30~500           | 489.43      | -58.64       | ≤-26        | 0.00137     | ≤2.5       | PASS    |
|               |           |         |                 | 500~1000         | 892.63      | -58.23       | ≤-26        | 0.00150     | ≤2.5       | PASS    |
|               |           |         |                 | 1000~2387        | 2386.31     | -51.98       | ≤-26        | 0.00634     | ≤2.5       | PASS    |

## Appendix A

CN24D2RM 006

Page 38 of 150



Prüfbericht - Produkte  
Test Report - Products

|      |           |      |      |               |         |        |      |         |      |      |
|------|-----------|------|------|---------------|---------|--------|------|---------|------|------|
| NTHV | 11G       | Ant1 |      | 2387~2400     | 2399.66 | -45.51 | ≤-16 | 0.02812 | ≤25  | PASS |
|      |           |      |      | 2483.5~2496.5 | 2486.84 | -37.55 | ≤-16 | 0.17579 | ≤25  | PASS |
|      |           |      |      | 2496.5~13000  | 2497.55 | -44.56 | ≤-26 | 0.03499 | ≤2.5 | PASS |
|      |           |      |      | 30~500        | 462.17  | -58.74 | ≤-26 | 0.00134 | ≤2.5 | PASS |
|      |           |      | 2412 | 500~1000      | 898.50  | -58.04 | ≤-26 | 0.00157 | ≤2.5 | PASS |
|      |           |      |      | 1000~2387     | 2387.00 | -47.07 | ≤-26 | 0.01963 | ≤2.5 | PASS |
|      |           |      |      | 2387~2400     | 2400.00 | -30.83 | ≤-16 | 0.82604 | ≤25  | PASS |
|      |           |      |      | 2483.5~2496.5 | 2490.92 | -45.38 | ≤-16 | 0.02897 | ≤25  | PASS |
|      |           |      |      | 2496.5~13000  | 2499.13 | -47.61 | ≤-26 | 0.01734 | ≤2.5 | PASS |
|      |           |      |      | 30~500        | 443.95  | -58.92 | ≤-26 | 0.00128 | ≤2.5 | PASS |
|      |           |      | 2442 | 500~1000      | 864.13  | -58.22 | ≤-26 | 0.00151 | ≤2.5 | PASS |
|      |           |      |      | 1000~2387     | 2382.15 | -51.41 | ≤-26 | 0.00723 | ≤2.5 | PASS |
|      |           |      |      | 2387~2400     | 2399.65 | -45.27 | ≤-16 | 0.02972 | ≤25  | PASS |
|      |           |      |      | 2483.5~2496.5 | 2488.60 | -44.74 | ≤-16 | 0.03357 | ≤25  | PASS |
|      |           |      |      | 2496.5~13000  | 2516.46 | -47.31 | ≤-26 | 0.01858 | ≤2.5 | PASS |
|      |           |      |      | 30~500        | 464.63  | -58.79 | ≤-26 | 0.00132 | ≤2.5 | PASS |
|      |           |      | 2472 | 500~1000      | 902.00  | -58.18 | ≤-26 | 0.00152 | ≤2.5 | PASS |
|      |           |      |      | 1000~2387     | 2377.29 | -52.15 | ≤-26 | 0.00610 | ≤2.5 | PASS |
|      |           |      |      | 2387~2400     | 2399.91 | -45.59 | ≤-16 | 0.02761 | ≤25  | PASS |
|      |           |      |      | 2483.5~2496.5 | 2483.53 | -24.53 | ≤-16 | 3.52371 | ≤25  | PASS |
|      |           |      |      | 2496.5~13000  | 2497.55 | -40.88 | ≤-26 | 0.08166 | ≤2.5 | PASS |
|      |           |      |      | 30~500        | 464.16  | -58.89 | ≤-26 | 0.00129 | ≤2.5 | PASS |
|      | 11N20SISO | Ant1 | 2412 | 500~1000      | 919.75  | -57.98 | ≤-26 | 0.00159 | ≤2.5 | PASS |
|      |           |      |      | 1000~2387     | 2387.00 | -46.54 | ≤-26 | 0.02218 | ≤2.5 | PASS |
|      |           |      |      | 2387~2400     | 2400.00 | -30.44 | ≤-16 | 0.90365 | ≤25  | PASS |
|      |           |      |      | 2483.5~2496.5 | 2493.94 | -45.17 | ≤-16 | 0.03041 | ≤25  | PASS |
|      |           |      | 2442 | 2496.5~13000  | 2520.66 | -47.95 | ≤-26 | 0.01603 | ≤2.5 | PASS |
|      |           |      |      | 30~500        | 489.31  | -58.96 | ≤-26 | 0.00127 | ≤2.5 | PASS |
|      |           |      |      | 500~1000      | 914.63  | -58.13 | ≤-26 | 0.00154 | ≤2.5 | PASS |
|      |           |      |      | 1000~2387     | 2376.60 | -50.77 | ≤-26 | 0.00838 | ≤2.5 | PASS |
|      |           |      |      | 2387~2400     | 2399.96 | -44.42 | ≤-16 | 0.03614 | ≤25  | PASS |
|      |           |      |      | 2483.5~2496.5 | 2491.51 | -44.47 | ≤-16 | 0.03573 | ≤25  | PASS |
|      |           |      |      | 2496.5~13000  | 2515.93 | -45.68 | ≤-26 | 0.02704 | ≤2.5 | PASS |
|      |           |      | 2472 | 30~500        | 494.95  | -58.79 | ≤-26 | 0.00132 | ≤2.5 | PASS |
|      |           |      |      | 500~1000      | 827.00  | -58.13 | ≤-26 | 0.00154 | ≤2.5 | PASS |
|      |           |      |      | 1000~2387     | 2385.61 | -51.12 | ≤-26 | 0.00773 | ≤2.5 | PASS |
|      |           |      |      | 2387~2400     | 2399.90 | -45.06 | ≤-16 | 0.03119 | ≤25  | PASS |
|      |           |      |      | 2483.5~2496.5 | 2483.50 | -24.61 | ≤-16 | 3.45939 | ≤25  | PASS |
|      |           |      |      | 2496.5~13000  | 2496.50 | -38.58 | ≤-26 | 0.13868 | ≤2.5 | PASS |
|      | 11N40SISO | Ant1 | 2422 | 30~500        | 30.59   | -45.63 | ≤-26 | 0.02735 | ≤2.5 | PASS |
|      |           |      |      | 500~1000      | 884.63  | -58.46 | ≤-26 | 0.00143 | ≤2.5 | PASS |
|      |           |      |      | 1000~2387     | 2387.00 | -44.16 | ≤-26 | 0.03837 | ≤2.5 | PASS |
|      |           |      |      | 2387~2400     | 2399.97 | -29.53 | ≤-16 | 1.11429 | ≤25  | PASS |
|      |           |      | 2442 | 2483.5~2496.5 | 2483.62 | -44.59 | ≤-16 | 0.03475 | ≤25  | PASS |
|      |           |      |      | 2496.5~13000  | 2501.75 | -47.77 | ≤-26 | 0.01671 | ≤2.5 | PASS |
|      |           |      |      | 30~500        | 30.71   | -44.57 | ≤-26 | 0.03491 | ≤2.5 | PASS |
|      |           |      |      | 500~1000      | 884.13  | -58.19 | ≤-26 | 0.00152 | ≤2.5 | PASS |
|      |           |      |      | 1000~2387     | 2386.31 | -47.15 | ≤-26 | 0.01928 | ≤2.5 | PASS |
|      |           |      |      | 2387~2400     | 2399.90 | -42.74 | ≤-16 | 0.05321 | ≤25  | PASS |
|      |           |      | 2462 | 2483.5~2496.5 | 2484.02 | -38.41 | ≤-16 | 1.44421 | ≤25  | PASS |
|      |           |      |      | 2496.5~13000  | 2496.50 | -43.45 | ≤-26 | 0.04519 | ≤2.5 | PASS |
|      |           |      |      | 30~500        | 30.59   | -44.82 | ≤-26 | 0.03296 | ≤2.5 | PASS |
|      |           |      |      | 500~1000      | 908.25  | -58.29 | ≤-26 | 0.00148 | ≤2.5 | PASS |
|      |           |      |      | 1000~2387     | 2385.61 | -51.37 | ≤-26 | 0.00729 | ≤2.5 | PASS |
|      |           |      |      | 2387~2400     | 2399.90 | -44.96 | ≤-16 | 0.03192 | ≤25  | PASS |
|      | 11B       | Ant1 | 2412 | 2483.5~2496.5 | 2483.51 | -26.04 | ≤-16 | 2.48886 | ≤25  | PASS |
|      |           |      |      | 2496.5~13000  | 2497.55 | -30.31 | ≤-26 | 0.93111 | ≤2.5 | PASS |
|      |           |      | 2442 | 30~500        | 490.37  | -58.47 | ≤-26 | 0.00142 | ≤2.5 | PASS |
|      |           |      |      | 500~1000      | 870.88  | -58.26 | ≤-26 | 0.00149 | ≤2.5 | PASS |
|      |           |      |      | 1000~2387     | 2385.61 | -47.67 | ≤-26 | 0.01710 | ≤2.5 | PASS |
|      |           |      |      | 2387~2400     | 2396.83 | -40.53 | ≤-16 | 0.08851 | ≤25  | PASS |
|      |           |      | 2472 | 2483.5~2496.5 | 2495.01 | -45.32 | ≤-16 | 0.02938 | ≤25  | PASS |
|      |           |      |      | 2496.5~13000  | 2501.23 | -48.61 | ≤-26 | 0.01377 | ≤2.5 | PASS |
|      |           |      |      | 30~500        | 469.10  | -58.31 | ≤-26 | 0.00148 | ≤2.5 | PASS |
|      |           |      |      | 500~1000      | 852.25  | -58.06 | ≤-26 | 0.00156 | ≤2.5 | PASS |
|      |           |      |      | 1000~2387     | 2385.96 | -51.27 | ≤-26 | 0.00746 | ≤2.5 | PASS |
|      |           |      |      | 2387~2400     | 2399.87 | -45.24 | ≤-16 | 0.02992 | ≤25  | PASS |
|      | 11G       | Ant1 | 2412 | 2483.5~2496.5 | 2487.58 | -45.04 | ≤-16 | 0.03133 | ≤25  | PASS |
|      |           |      |      | 2496.5~13000  | 2509.63 | -47.59 | ≤-26 | 0.01742 | ≤2.5 | PASS |
|      |           |      | 2442 | 30~500        | 453.12  | -58.81 | ≤-26 | 0.00132 | ≤2.5 | PASS |
|      |           |      |      | 500~1000      | 892.75  | -58.17 | ≤-26 | 0.00152 | ≤2.5 | PASS |
|      |           |      |      | 1000~2387     | 2386.31 | -51.76 | ≤-26 | 0.00667 | ≤2.5 | PASS |
|      |           |      |      | 2387~2400     | 2399.88 | -45.65 | ≤-16 | 0.02723 | ≤25  | PASS |
|      |           |      | 2472 | 2483.5~2496.5 | 2486.88 | -37.62 | ≤-16 | 0.17298 | ≤25  | PASS |
|      |           |      |      | 2496.5~13000  | 2497.03 | -44.77 | ≤-26 | 0.03334 | ≤2.5 | PASS |
|      |           |      | 2412 | 30~500        | 457.00  | -58.56 | ≤-26 | 0.00139 | ≤2.5 | PASS |
|      |           |      |      | 500~1000      | 896.00  | -58.23 | ≤-26 | 0.00150 | ≤2.5 | PASS |
|      |           |      |      | 1000~2387     | 2387.00 | -47.47 | ≤-26 | 0.01791 | ≤2.5 | PASS |
|      |           |      |      | 2387~2400     | 2399.99 | -30.68 | ≤-16 | 0.85507 | ≤25  | PASS |
|      |           |      | 2442 | 2483.5~2496.5 | 2483.97 | -45.35 | ≤-16 | 0.02917 | ≤25  | PASS |
|      |           |      |      | 2496.5~13000  | 3817.32 | -48.45 | ≤-26 | 0.01429 | ≤2.5 | PASS |
|      |           |      |      | 30~500        | 470.98  | -58.47 | ≤-26 | 0.00142 | ≤2.5 | PASS |
|      |           |      |      | 500~1000      | 896.75  | -58.19 | ≤-26 | 0.00152 | ≤2.5 | PASS |
|      |           |      |      | 1000~2387     | 2385.61 | -51.30 | ≤-26 | 0.00741 | ≤2.5 | PASS |
|      |           |      |      | 2387~2400     | 2399.90 | -45.28 | ≤-16 | 0.02965 | ≤25  | PASS |
|      |           |      | 2472 | 2483.5~2496.5 | 2484.35 | -45.00 | ≤-16 | 0.03162 | ≤25  | PASS |
|      |           |      |      | 2496.5~13000  | 2507.53 | -46.98 | ≤-26 | 0.02004 | ≤2.5 | PASS |
|      |           |      |      | 30~500        | 481.79  | -58.97 | ≤-26 | 0.00127 | ≤2.5 | PASS |
|      |           |      |      | 500~1000      | 892.50  | -57.68 | ≤-26 | 0.00171 | ≤2.5 | PASS |
|      |           |      |      | 1000~2387     | 2385.27 | -52.01 | ≤-26 | 0.00630 | ≤2.5 | PASS |
|      |           |      |      | 2387~2400     | 2399.84 | -45.59 | ≤-16 | 0.02761 | ≤25  | PASS |
|      |           |      |      | 2483.5~2496.5 | 2483.50 | -24.70 | ≤-16 | 3.38844 | ≤25  | PASS |
|      |           |      |      | 2496.5~13000  | 2496.50 | -42.56 | ≤-26 | 0.05546 | ≤2.5 | PASS |

|  |           |      |      |               |         |        |      |         |      |      |
|--|-----------|------|------|---------------|---------|--------|------|---------|------|------|
|  | 11N20SISO | Ant1 | 2412 | 30~500        | 479.79  | -58.84 | ≤-26 | 0.00131 | ≤2.5 | PASS |
|  |           |      |      | 500~1000      | 899.88  | -58.10 | ≤-26 | 0.00155 | ≤2.5 | PASS |
|  |           |      |      | 1000~2387     | 2386.65 | -45.93 | ≤-26 | 0.02553 | ≤2.5 | PASS |
|  |           |      |      | 2387~2400     | 2400.00 | -30.29 | ≤-16 | 0.93541 | ≤25  | PASS |
|  |           |      |      | 2483.5~2496.5 | 2491.72 | -45.12 | ≤-16 | 0.03076 | ≤25  | PASS |
|  |           |      | 2442 | 2496.5~13000  | 2507.53 | -46.76 | ≤-26 | 0.02109 | ≤2.5 | PASS |
|  |           |      |      | 30~500        | 488.72  | -58.77 | ≤-26 | 0.00133 | ≤2.5 | PASS |
|  |           |      |      | 500~1000      | 882.63  | -58.28 | ≤-26 | 0.00149 | ≤2.5 | PASS |
|  |           |      |      | 1000~2387     | 2386.31 | -50.54 | ≤-26 | 0.00883 | ≤2.5 | PASS |
|  |           |      |      | 2387~2400     | 2399.99 | -44.88 | ≤-16 | 0.03251 | ≤25  | PASS |
|  |           |      | 2472 | 2483.5~2496.5 | 2494.50 | -44.49 | ≤-16 | 0.03556 | ≤25  | PASS |
|  |           |      |      | 2496.5~13000  | 2502.28 | -46.31 | ≤-26 | 0.02339 | ≤2.5 | PASS |
|  |           |      |      | 30~500        | 178.99  | -58.46 | ≤-26 | 0.00143 | ≤2.5 | PASS |
|  |           |      |      | 500~1000      | 892.63  | -58.29 | ≤-26 | 0.00148 | ≤2.5 | PASS |
|  |           |      |      | 1000~2387     | 2384.57 | -51.12 | ≤-26 | 0.00773 | ≤2.5 | PASS |
|  | 11N40SISO | Ant1 | 2422 | 2387~2400     | 2399.92 | -45.16 | ≤-16 | 0.03048 | ≤25  | PASS |
|  |           |      |      | 2483.5~2496.5 | 2483.51 | -24.77 | ≤-16 | 3.33426 | ≤25  | PASS |
|  |           |      |      | 2496.5~13000  | 2497.03 | -40.29 | ≤-26 | 0.09354 | ≤2.5 | PASS |
|  |           |      |      | 30~500        | 30.59   | -45.20 | ≤-26 | 0.03020 | ≤2.5 | PASS |
|  |           |      |      | 500~1000      | 901.50  | -58.34 | ≤-26 | 0.00147 | ≤2.5 | PASS |
|  |           |      | 2442 | 1000~2387     | 2386.65 | -44.52 | ≤-26 | 0.03532 | ≤2.5 | PASS |
|  |           |      |      | 2387~2400     | 2399.97 | -29.77 | ≤-16 | 1.05439 | ≤25  | PASS |
|  |           |      |      | 2483.5~2496.5 | 2484.77 | -44.74 | ≤-16 | 0.03357 | ≤25  | PASS |
|  |           |      |      | 2496.5~13000  | 2508.05 | -47.21 | ≤-26 | 0.01901 | ≤2.5 | PASS |
|  |           |      |      | 30~500        | 30.94   | -44.82 | ≤-26 | 0.03296 | ≤2.5 | PASS |
|  |           |      | 2462 | 500~1000      | 922.13  | -58.36 | ≤-26 | 0.00146 | ≤2.5 | PASS |
|  |           |      |      | 1000~2387     | 2384.57 | -47.26 | ≤-26 | 0.01879 | ≤2.5 | PASS |
|  |           |      |      | 2387~2400     | 2399.97 | -42.94 | ≤-16 | 0.05082 | ≤25  | PASS |
|  |           |      |      | 2483.5~2496.5 | 2484.20 | -38.22 | ≤-16 | 0.15066 | ≤25  | PASS |
|  |           |      |      | 2496.5~13000  | 2497.55 | -43.77 | ≤-26 | 0.04198 | ≤2.5 | PASS |
|  |           |      |      | 30~500        | 30.71   | -44.38 | ≤-26 | 0.03648 | ≤2.5 | PASS |
|  |           |      |      | 500~1000      | 794.13  | -58.51 | ≤-26 | 0.00141 | ≤2.5 | PASS |
|  |           |      |      | 1000~2387     | 2385.61 | -50.11 | ≤-26 | 0.00975 | ≤2.5 | PASS |
|  |           |      |      | 2387~2400     | 2399.84 | -44.92 | ≤-16 | 0.03221 | ≤25  | PASS |
|  |           |      |      | 2483.5~2496.5 | 2483.51 | -26.06 | ≤-16 | 2.47742 | ≤25  | PASS |
|  |           |      |      | 2496.5~13000  | 2496.50 | -31.04 | ≤-26 | 0.78705 | ≤2.5 | PASS |





## NTNV 11B Ant1 2412 2387~2400



## NTNV 11B Ant1 2412 2483.5~2496.5

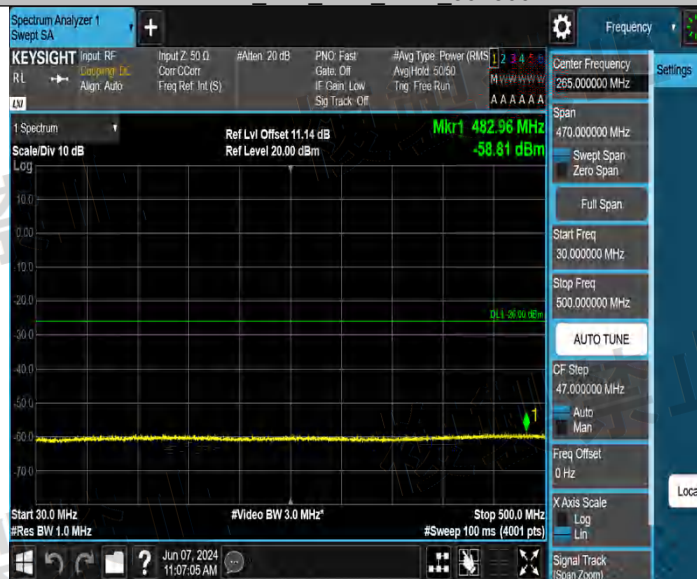


## NTNV 11B Ant1 2412 2496.5~13000





NTNV 11B Ant1 2442 30~500



NTNV 11B Ant1 2442 500~1000



NTNV 11B Ant1 2442 1000~2387





## NTNV 11B Ant1 2442 2387~2400



## NTNV 11B Ant1 2442 2483.5~2496.5



## NTNV 11B Ant1 2442 2496.5~13000







## NTNV 11B Ant1 2472 2387~2400



## NTNV 11B Ant1 2472 2483.5~2496.5



## NTNV 11B Ant1 2472 2496.5~13000







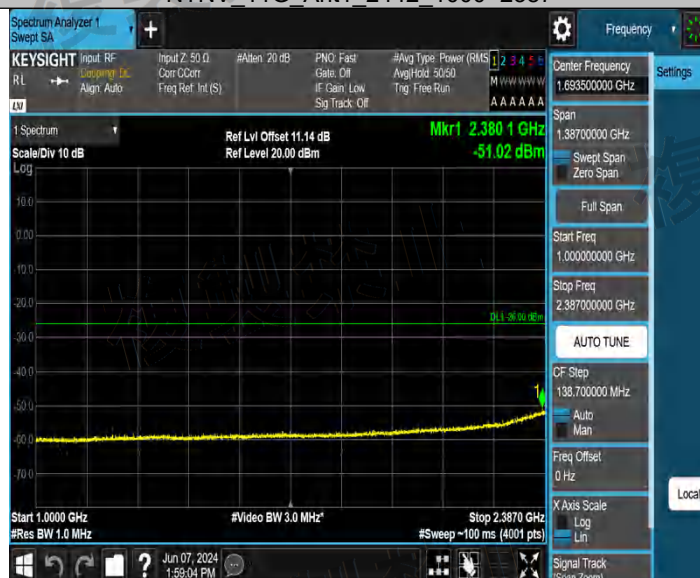
NTNV 11G Ant1 2442 30~500



NTNV 11G Ant1 2442 500~1000



NTNV 11G Ant1 2442 1000~2387





## NTNV 11G Ant1 2442 2387~2400



## NTNV 11G Ant1 2442 2483.5~2496.5

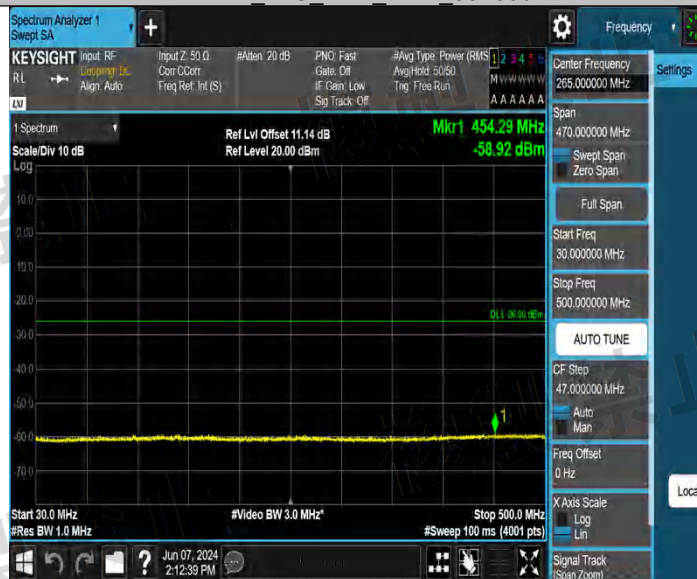


## NTNV 11G Ant1 2442 2496.5~13000





NTNV 11G Ant1 2472 30~500



NTNV 11G Ant1 2472 500~1000



NTNV 11G Ant1 2472 1000~2387





## NTNV 11G Ant1 2472 2387~2400

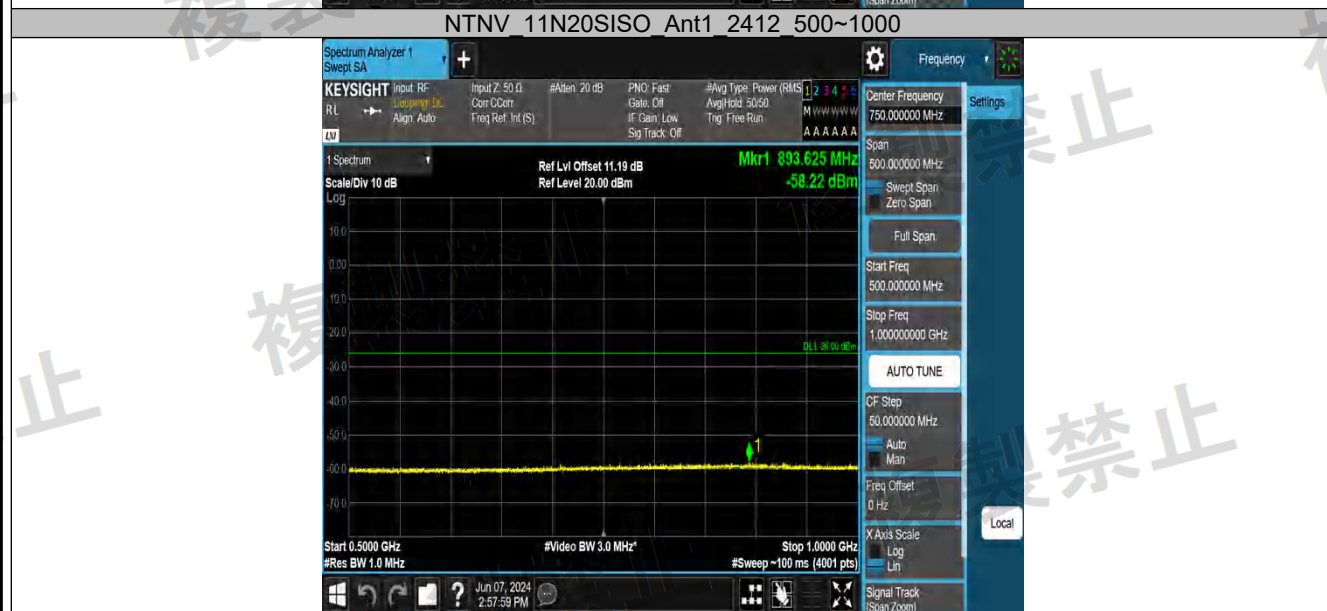
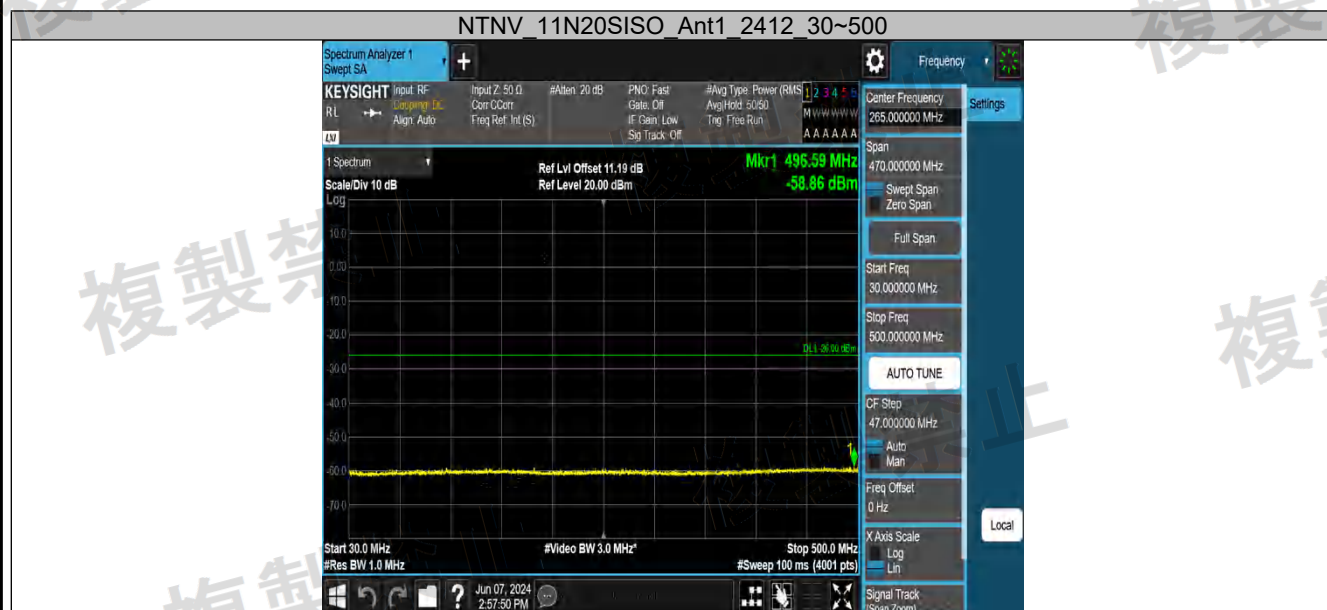


## NTNV 11G Ant1 2472 2483.5~2496.5



## NTNV 11G Ant1 2472 2496.5~13000





NTNV 11N20SISO Ant1 2412 2387~2400



NTNV 11N20SISO Ant1 2412 2483.5~2496.5



NTNV 11N20SISO Ant1 2412 2496.5~13000





NTNV 11N20SISO Ant1 2442 30~500



NTNV 11N20SISO Ant1 2442 500~1000



NTNV 11N20SISO Ant1 2442 1000~2387





NTNV 11N20SISO Ant1 2442 2387~2400



NTNV 11N20SISO Ant1 2442 2483.5~2496.5



NTNV 11N20SISO Ant1 2442 2496.5~13000





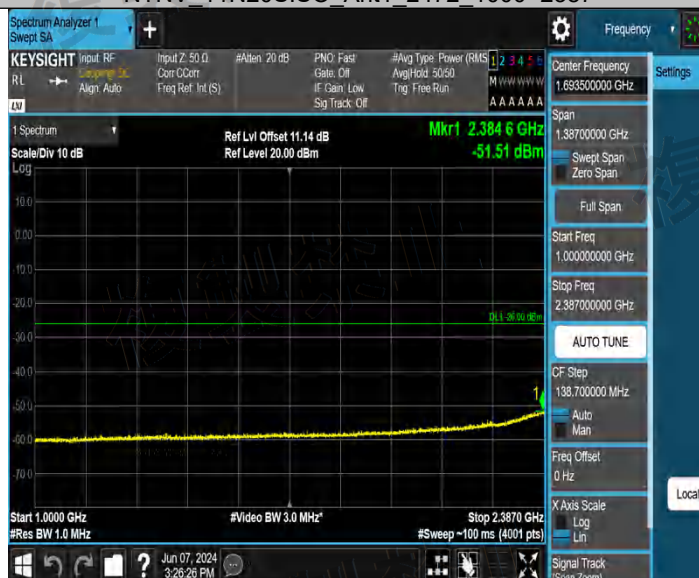
NTNV 11N20SISO Ant1 2472 30~500



NTNV 11N20SISO Ant1 2472 500~1000



NTNV 11N20SISO Ant1 2472 1000~2387





NTNV 11N20SISO Ant1 2472 2387~2400



NTNV 11N20SISO Ant1 2472 2483.5~2496.5



NTNV 11N20SISO Ant1 2472 2496.5~13000





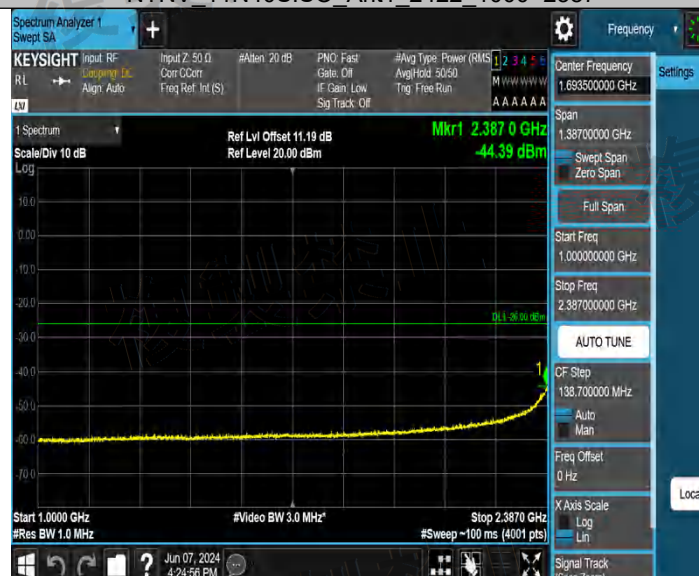
NTNV 11N40SISO Ant1 2422 30~500



NTNV 11N40SISO Ant1 2422 500~1000



NTNV 11N40SISO Ant1 2422 1000~2387





NTNV 11N40SISO Ant1 2422 2387~2400



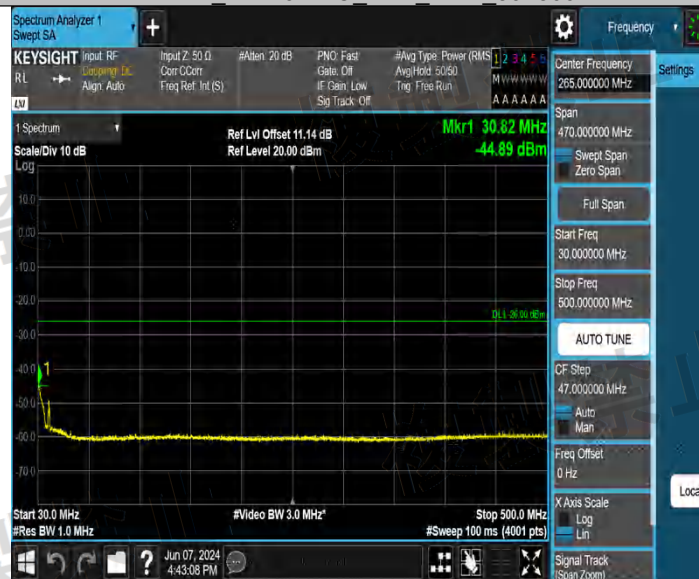
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NTNV 11N40SISO Ant1 2422 2496.5~13000



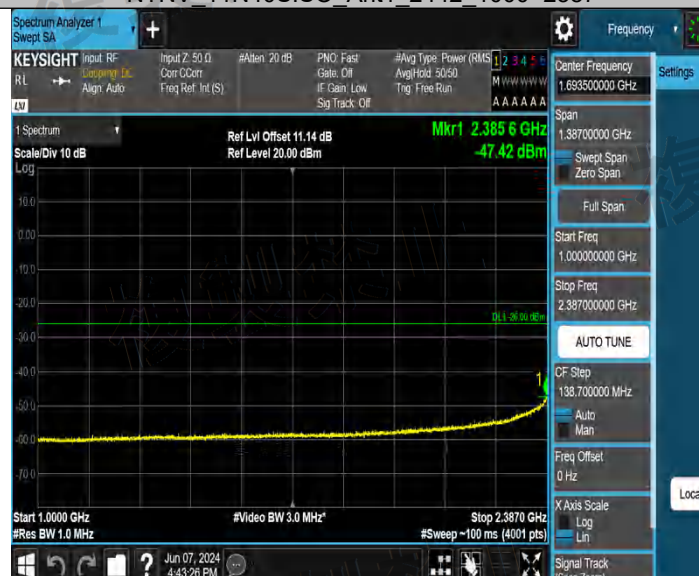
NTNV 11N40SISO Ant1 2442 30~500



NTNV 11N40SISO Ant1 2442 500~1000



NTNV 11N40SISO Ant1 2442 1000~2387



NTNV 11N40SISO Ant1 2442 2387~2400



NTNV 11N40SISO Ant1 2442 2483.5~2496.5



NTNV 11N40SISO Ant1 2442 2496.5~13000



NTNV 11N40SISO Ant1 2462 30~500



NTNV 11N40SISO Ant1 2462 500~1000



NTNV 11N40SISO Ant1 2462 1000~2387



NTNV 11N40SISO Ant1 2462 2387~2400



NTNV 11N40SISO Ant1 2462 2483.5~2496.5



NTNV 11N40SISO Ant1 2462 2496.5~13000





## NTLV 11B Ant1 2412 2387~2400



## NTLV 11B Ant1 2412 2483.5~2496.5



## NTLV 11B Ant1 2412 2496.5~13000





NTLV\_11B\_Ant1\_2442\_2387~2400



NTLV\_11B\_Ant1\_2442\_2483.5~2496.5

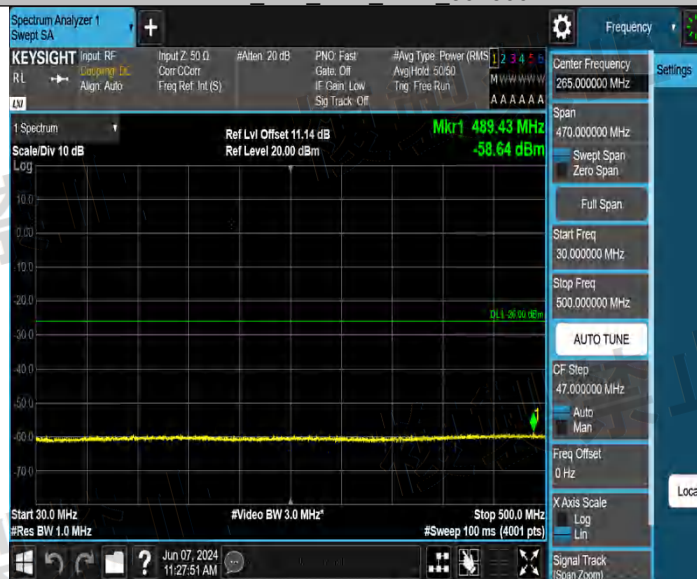


NTLV\_11B\_Ant1\_2442\_2496.5~13000





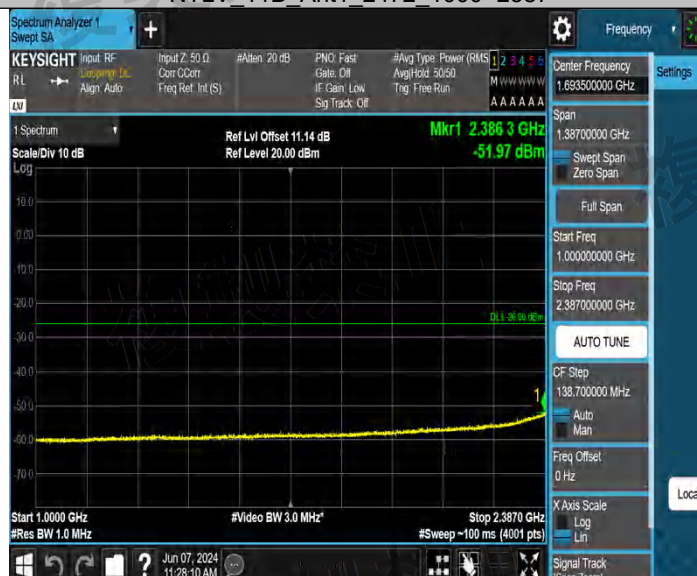
NTLV 11B Ant1 2472 30~500



NTLV 11B Ant1 2472 500~1000



NTLV 11B Ant1 2472 1000~2387





## NTLV 11B Ant1 2472 2387~2400



## NTLV 11B Ant1 2472 2483.5~2496.5

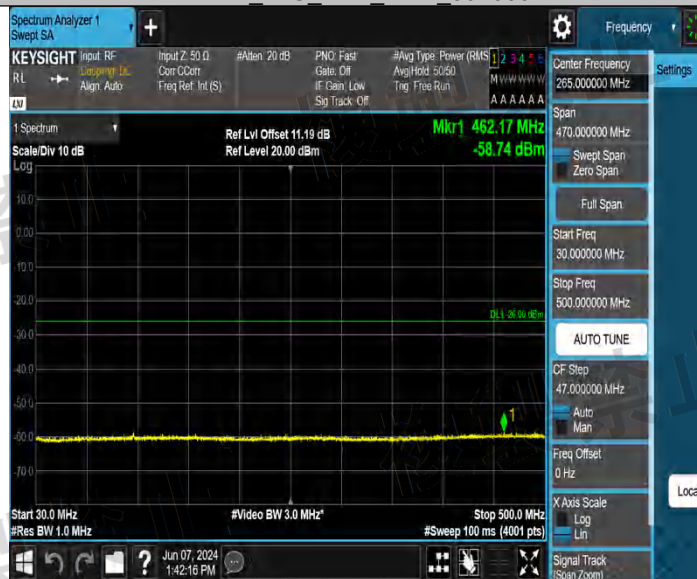


## NTLV 11B Ant1 2472 2496.5~13000





## NTLV\_11G\_Ant1\_2412\_30~500



## NTLV\_11G\_Ant1\_2412\_500~1000



## NTLV\_11G\_Ant1\_2412\_1000~2387









## NTLV\_11G\_Ant1\_2442\_2387~2400



## NTLV\_11G\_Ant1\_2442\_2483.5~2496.5



## NTLV\_11G\_Ant1\_2442\_2496.5~13000







## NTLV\_11G\_Ant1\_2472\_2387~2400



## NTLV\_11G\_Ant1\_2472\_2483.5~2496.5



## NTLV\_11G\_Ant1\_2472\_2496.5~13000





## NTLV 11N20SISO Ant1 2412 30~500



## NTLV 11N20SISO Ant1 2412 500~1000



## NTLV 11N20SISO Ant1 2412 1000~2387





NTLV 11N20SISO Ant1 2412 2387~2400



NTLV 11N20SISO Ant1 2412 2483.5~2496.5



NTLV 11N20SISO Ant1 2412 2496.5~13000



## NTLV 11N20SISO Ant1 2442 30~500



## NTLV 11N20SISO Ant1 2442 500~1000



## NTLV 11N20SISO Ant1 2442 1000~2387



NTLV 11N20SISO Ant1 2442 2387~2400



NTLV 11N20SISO Ant1 2442 2483.5~2496.5



NTLV 11N20SISO Ant1 2442 2496.5~13000



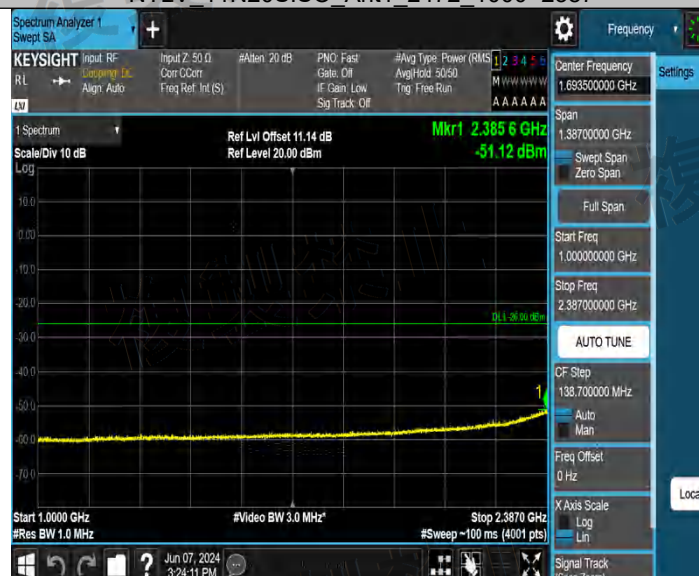
## NTLV 11N20SISO Ant1 2472 30~500



## NTLV 11N20SISO Ant1 2472 500~1000



## NTLV 11N20SISO Ant1 2472 1000~2387



NTLV 11N20SISO Ant1 2472 2387~2400



NTLV 11N20SISO Ant1 2472 2483.5~2496.5



NTLV 11N20SISO Ant1 2472 2496.5~13000



## NTLV 11N40SISO Ant1 2422 30~500



## NTLV 11N40SISO Ant1 2422 500~1000



## NTLV 11N40SISO Ant1 2422 1000~2387





NTLV 11N40SISO Ant1 2422 2387~2400



NTLV 11N40SISO Ant1 2422 2483.5~2496.5



NTLV 11N40SISO Ant1 2422 2496.5~13000



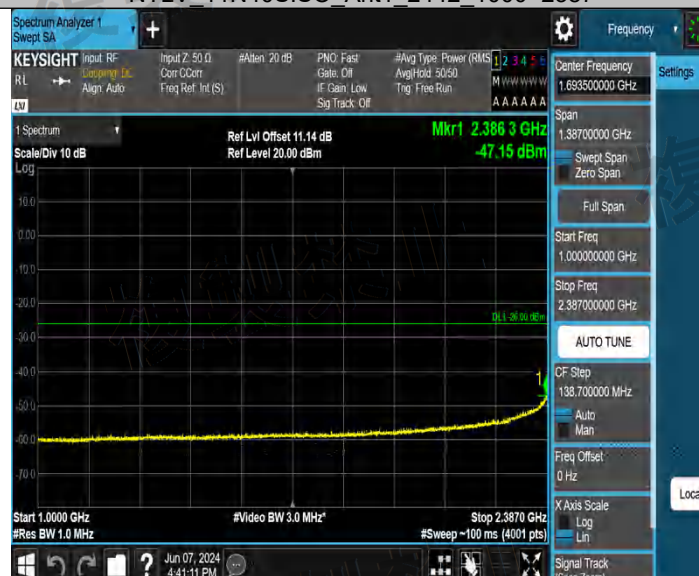
## NTLV 11N40SISO Ant1 2442 30~500



## NTLV 11N40SISO Ant1 2442 500~1000



## NTLV 11N40SISO Ant1 2442 1000~2387



NTLV 11N40SISO Ant1 2442 2387~2400



NTLV 11N40SISO Ant1 2442 2483.5~2496.5



NTLV 11N40SISO Ant1 2442 2496.5~13000





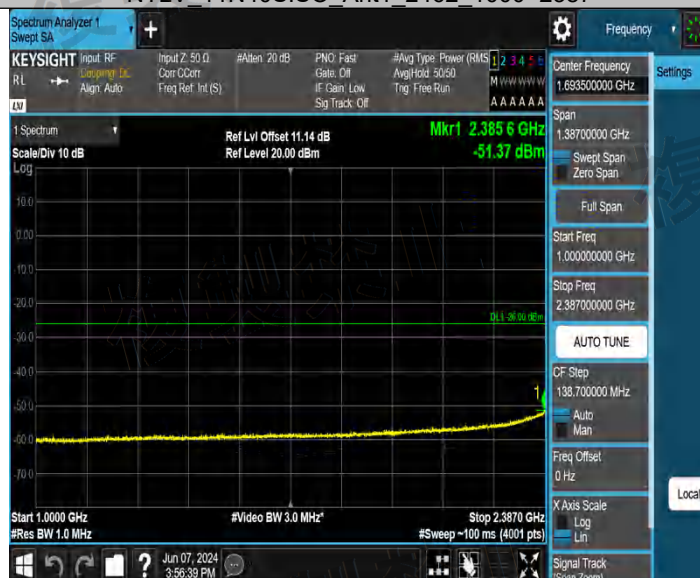
## NTLV 11N40SISO Ant1 2462 30~500



## NTLV 11N40SISO Ant1 2462 500~1000



## NTLV 11N40SISO Ant1 2462 1000~2387





NTLV 11N40SISO Ant1 2462 2387~2400



NTLV 11N40SISO Ant1 2462 2483.5~2496.5



NTLV 11N40SISO Ant1 2462 2496.5~13000









NTHV 11B Ant1 2442 2387~2400



NTHV 11B Ant1 2442 2483.5~2496.5



NTHV 11B Ant1 2442 2496.5~13000







## NTHV 11B Ant1 2472 2387~2400



## NTHV 11B Ant1 2472 2483.5~2496.5



## NTHV 11B Ant1 2472 2496.5~13000





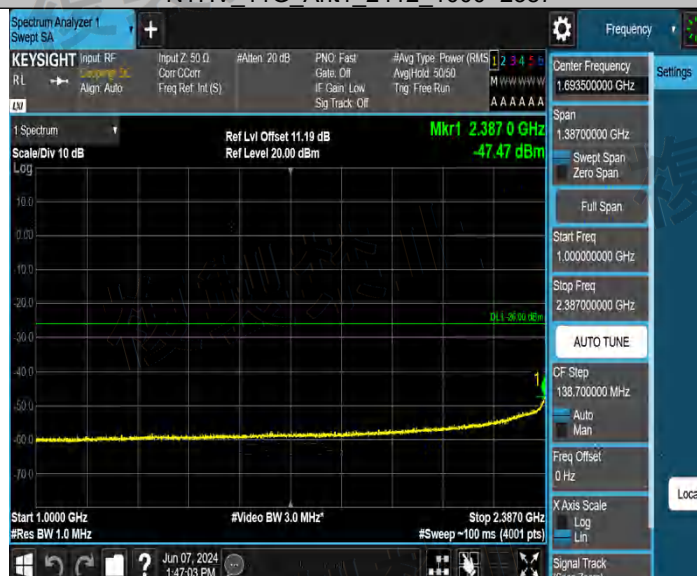
NTHV 11G Ant1 2412 30~500



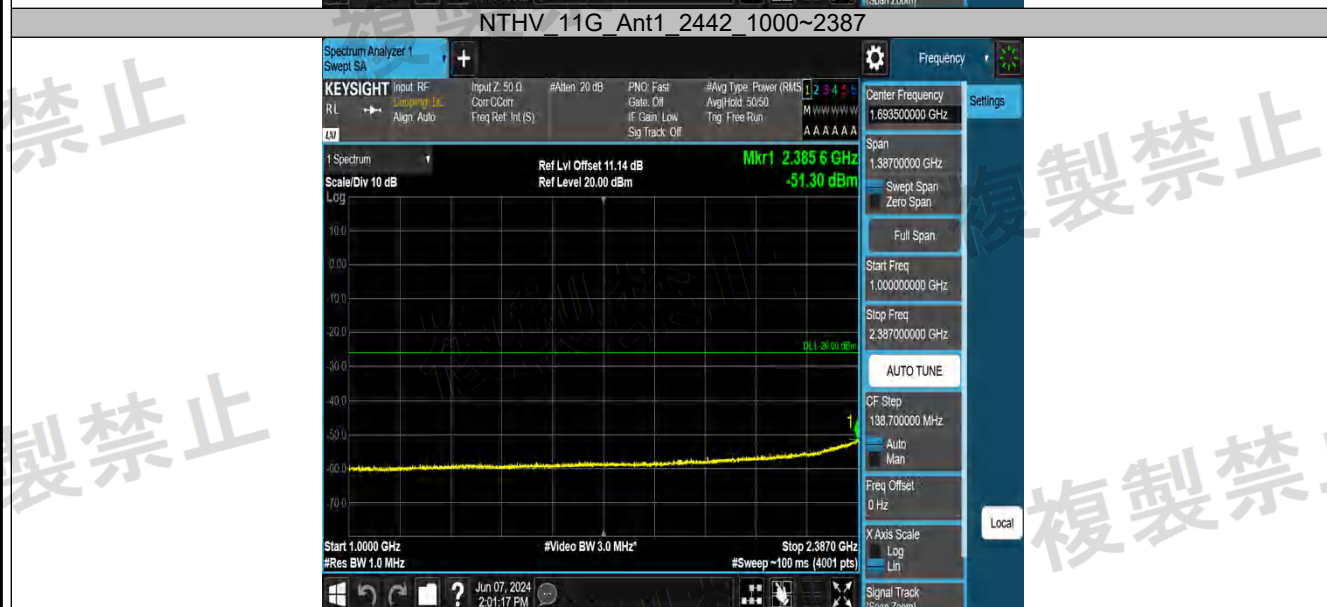
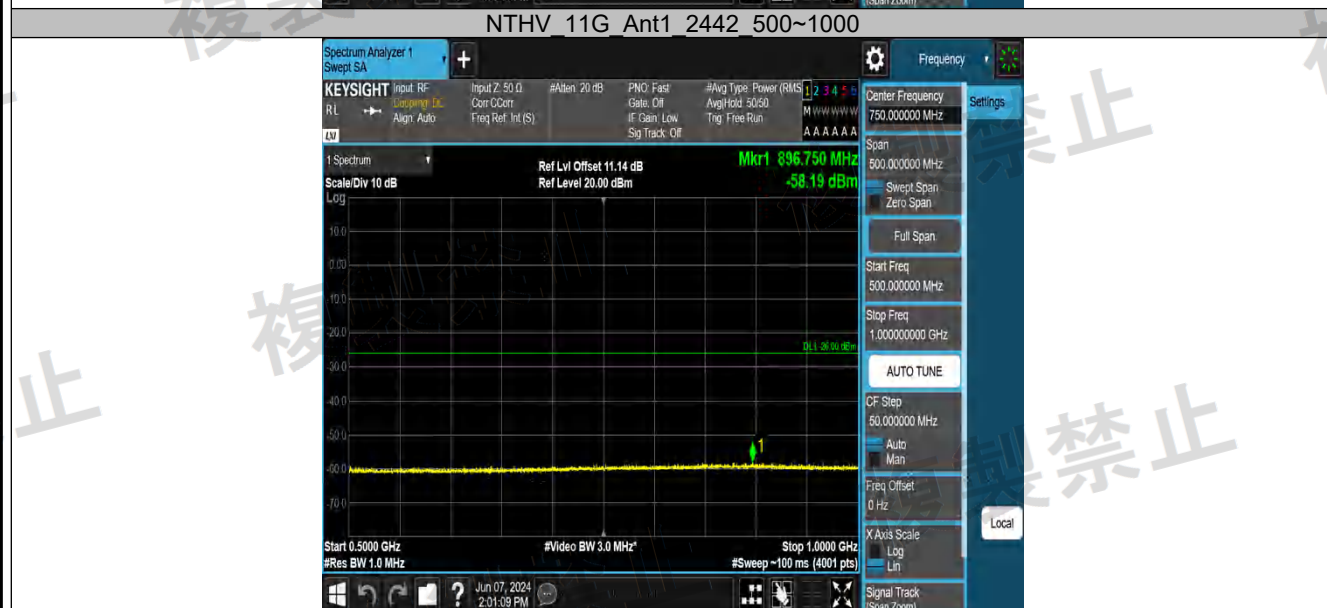
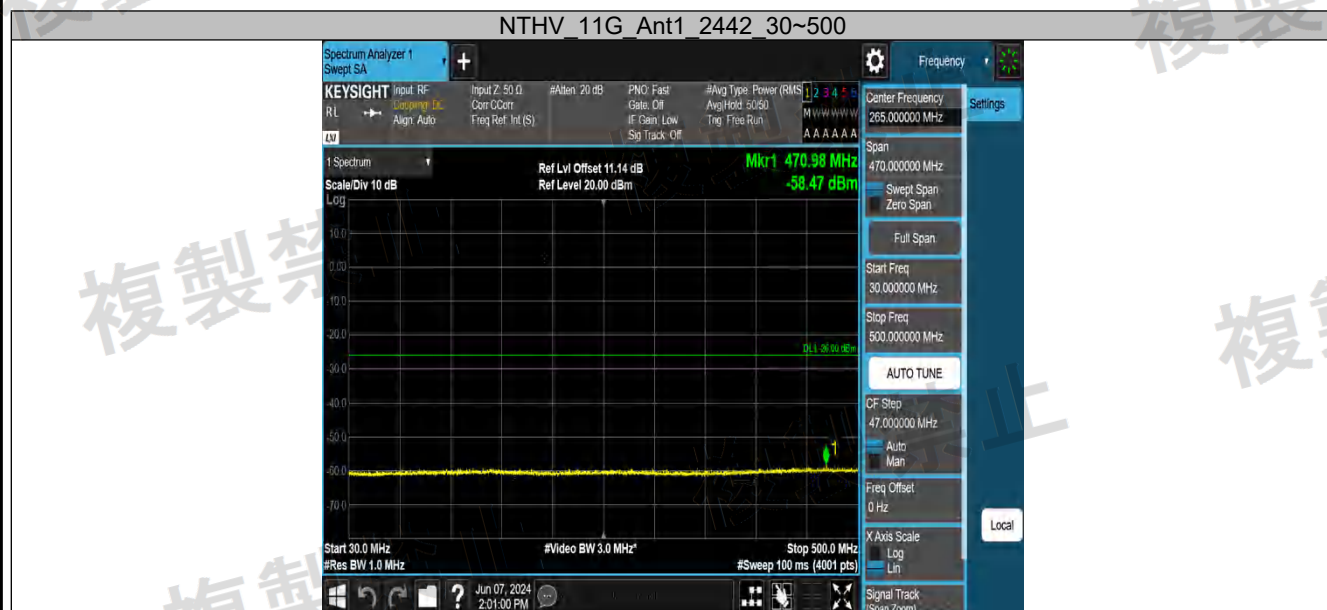
NTHV 11G Ant1 2412 500~1000



NTHV 11G Ant1 2412 1000~2387



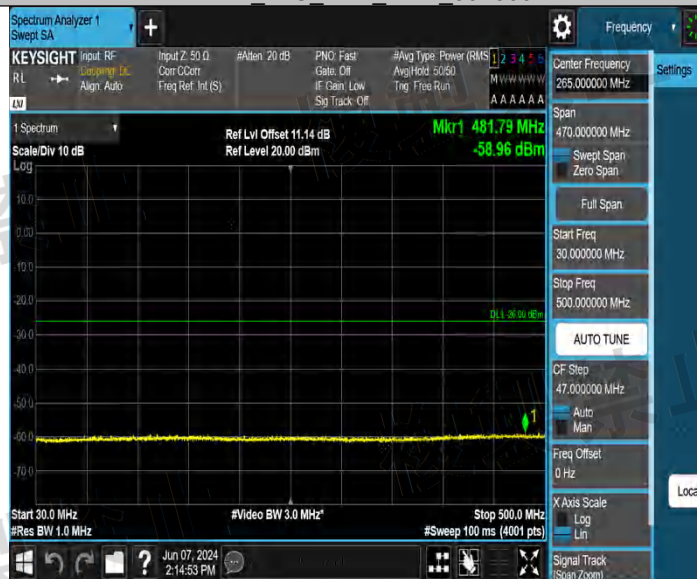








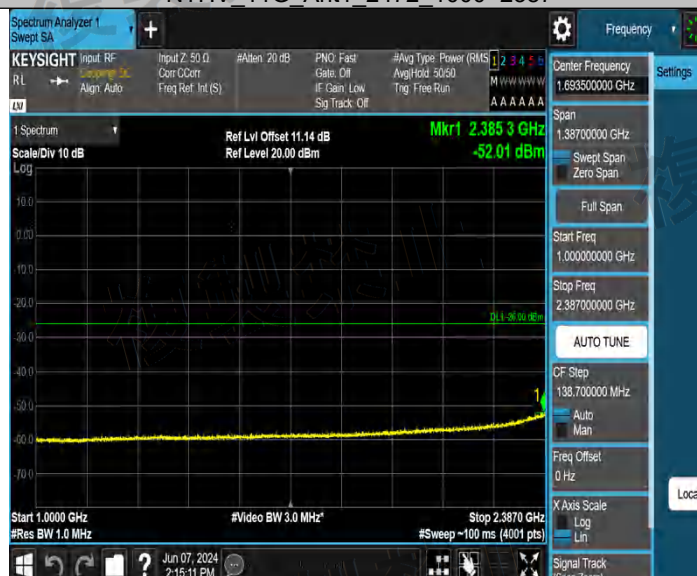
NTHV 11G Ant1 2472 30~500

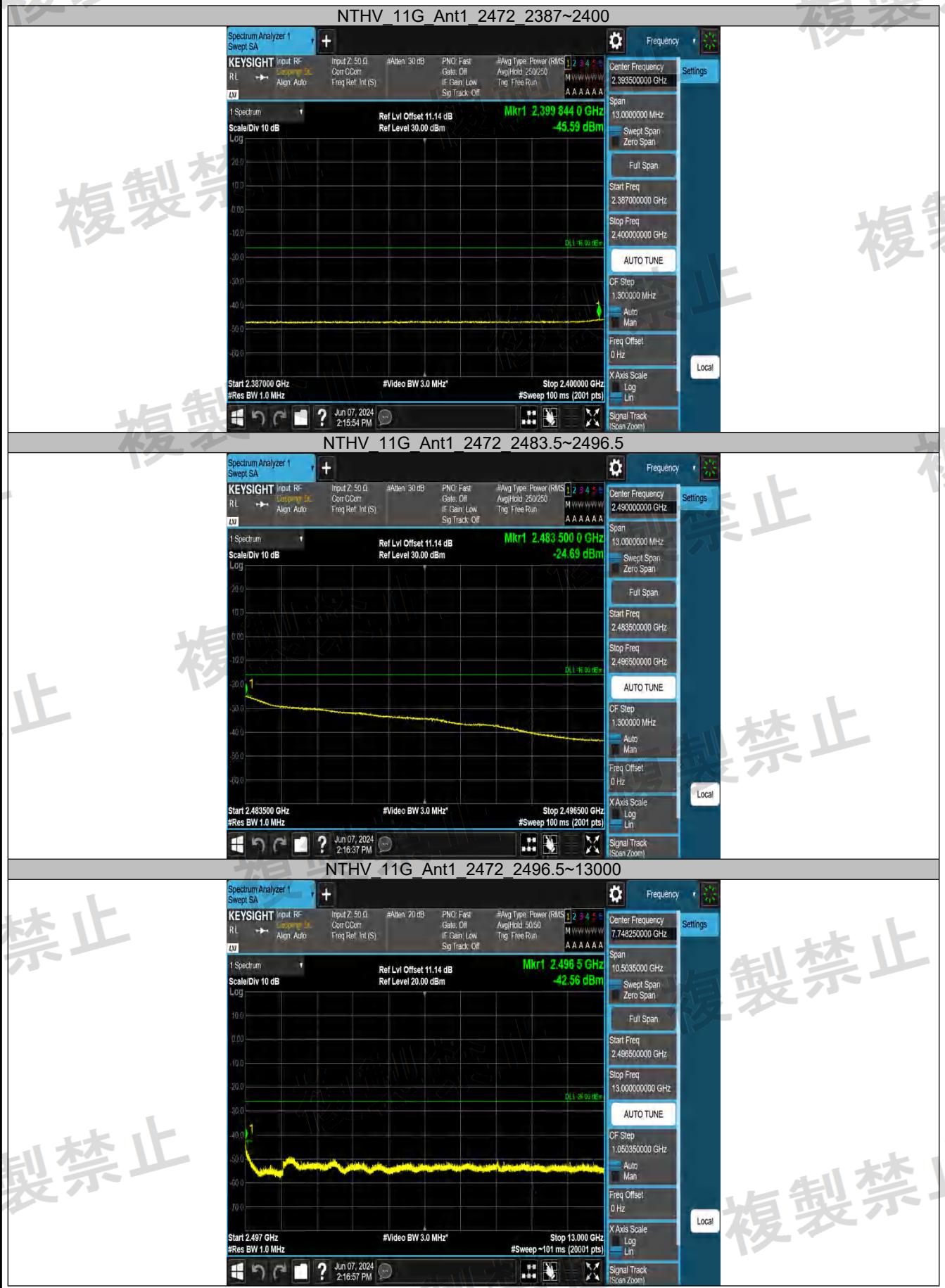


NTHV 11G Ant1 2472 500~1000



NTHV 11G Ant1 2472 1000~2387







NTHV 11N20SISO Ant1 2412 30~500



NTHV 11N20SISO Ant1 2412 500~1000



NTHV 11N20SISO Ant1 2412 1000~2387





NTHV 11N20SISO Ant1 2412 2387~2400



NTHV 11N20SISO Ant1 2412 2483.5~2496.5



NTHV 11N20SISO Ant1 2412 2496.5~13000





NTHV 11N20SISO Ant1 2442 30~500



NTHV 11N20SISO Ant1 2442 500~1000



NTHV 11N20SISO Ant1 2442 1000~2387





NTHV 11N20SISO Ant1 2442 2387~2400



NTHV 11N20SISO Ant1 2442 2483.5~2496.5



NTHV 11N20SISO Ant1 2442 2496.5~13000





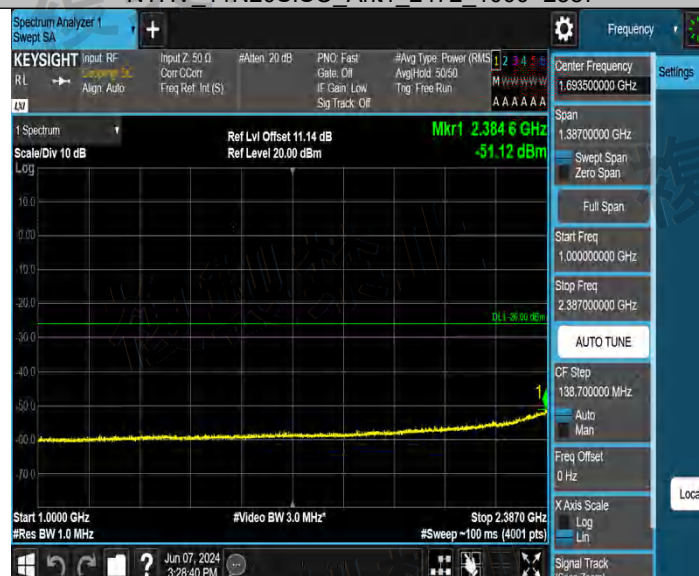
NTHV 11N20SISO Ant1 2472 30~500



NTHV 11N20SISO Ant1 2472 500~1000



NTHV 11N20SISO Ant1 2472 1000~2387



NTHV 11N20SISO Ant1 2472 2387~2400



NTHV 11N20SISO Ant1 2472 2483.5~2496.5



NTHV 11N20SISO Ant1 2472 2496.5~13000





NTHV 11N40SISO Ant1 2422 30~500



NTHV 11N40SISO Ant1 2422 500~1000



NTHV 11N40SISO Ant1 2422 1000~2387



NTHV 11N40SISO Ant1 2422 2387~2400



NTHV 11N40SISO Ant1 2422 2483.5~2496.5



NTHV 11N40SISO Ant1 2422 2496.5~13000





NTHV 11N40SISO Ant1 2442 30~500



NTHV 11N40SISO Ant1 2442 500~1000



NTHV 11N40SISO Ant1 2442 1000~2387



NTHV 11N40SISO Ant1 2442 2387~2400

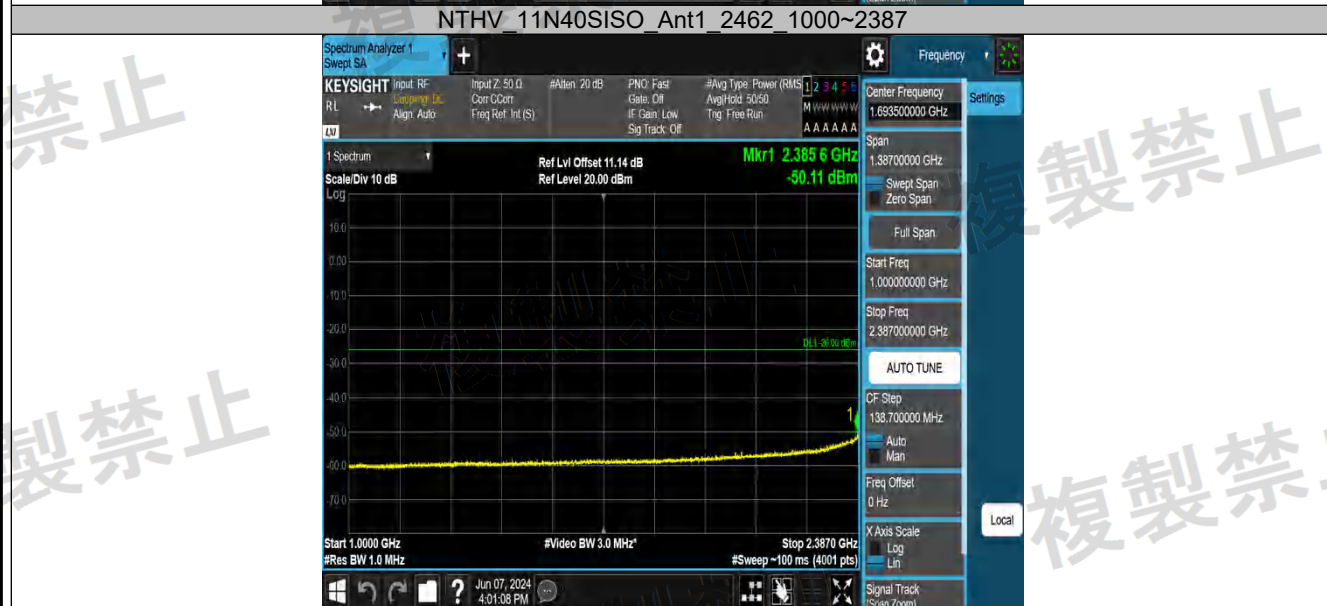


NTHV 11N40SISO Ant1 2442 2483.5~2496.5



NTHV 11N40SISO Ant1 2442 2496.5~13000







NTHV 11N40SISO Ant1 2462 2387~2400



NTHV 11N40SISO Ant1 2462 2483.5~2496.5



NTHV 11N40SISO Ant1 2462 2496.5~13000



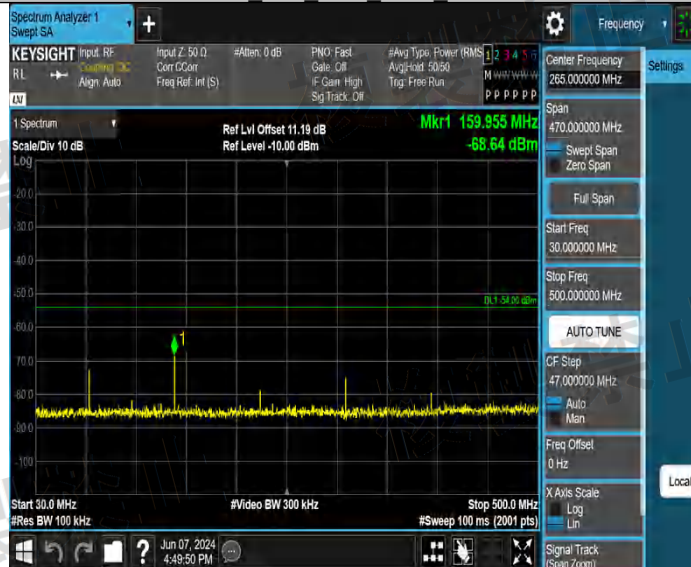
**Appendix A.6: Test Results of Spurious Emissions for Receiver**

| TestCondition | TestMode  | Antenna | Frequency[MHz] | Freq.Range [MHz] | Freq. [MHz] | Result [dBm] | Limit [dBm] | Result [nW] | Limit [nW] | Verdict |
|---------------|-----------|---------|----------------|------------------|-------------|--------------|-------------|-------------|------------|---------|
| NTNV          | 11B       | Ant1    | 2412           | 30~500           | 159.96      | -68.64       | ≤-54        | 0.13677     | ≤4         | PASS    |
|               |           |         |                | 500~1000         | 833.25      | -81.30       | ≤-54        | 0.00741     | ≤4         | PASS    |
|               |           |         |                | 1000~12500       | 3816.35     | -62.56       | ≤-47        | 0.55463     | ≤20        | PASS    |
|               |           |         | 2442           | 30~500           | 159.96      | -69.18       | ≤-54        | 0.12078     | ≤4         | PASS    |
|               |           |         |                | 500~1000         | 961.75      | -81.37       | ≤-54        | 0.00729     | ≤4         | PASS    |
|               |           |         |                | 1000~12500       | 3788.18     | -62.26       | ≤-47        | 0.59429     | ≤20        | PASS    |
|               |           |         | 2472           | 30~500           | 159.96      | -68.75       | ≤-54        | 0.13335     | ≤4         | PASS    |
|               |           |         |                | 500~1000         | 803.75      | -80.80       | ≤-54        | 0.00832     | ≤4         | PASS    |
|               |           |         |                | 1000~12500       | 3856.60     | -63.65       | ≤-47        | 0.43152     | ≤20        | PASS    |
|               | 11G       | Ant1    | 2412           | 30~500           | 159.96      | -68.60       | ≤-54        | 0.13804     | ≤4         | PASS    |
|               |           |         |                | 500~1000         | 930.75      | -80.47       | ≤-54        | 0.00897     | ≤4         | PASS    |
|               |           |         |                | 1000~12500       | 3794.50     | -63.31       | ≤-47        | 0.46666     | ≤20        | PASS    |
|               |           |         | 2442           | 30~500           | 159.96      | -68.66       | ≤-54        | 0.13614     | ≤4         | PASS    |
|               |           |         |                | 500~1000         | 800.00      | -80.54       | ≤-54        | 0.00883     | ≤4         | PASS    |
|               |           |         |                | 1000~12500       | 3769.78     | -63.13       | ≤-47        | 0.48641     | ≤20        | PASS    |
|               |           |         | 2472           | 30~500           | 159.96      | -68.73       | ≤-54        | 0.13397     | ≤4         | PASS    |
|               |           |         |                | 500~1000         | 800.00      | -80.88       | ≤-54        | 0.00817     | ≤4         | PASS    |
|               |           |         |                | 1000~12500       | 5783.43     | -61.45       | ≤-47        | 0.71614     | ≤20        | PASS    |
|               | 11N20SISO | Ant1    | 2412           | 30~500           | 159.96      | -68.58       | ≤-54        | 0.13868     | ≤4         | PASS    |
|               |           |         |                | 500~1000         | 829.50      | -81.16       | ≤-54        | 0.00766     | ≤4         | PASS    |
|               |           |         |                | 1000~12500       | 3734.13     | -63.03       | ≤-47        | 0.49774     | ≤20        | PASS    |
|               |           |         | 2442           | 30~500           | 159.96      | -68.80       | ≤-54        | 0.13183     | ≤4         | PASS    |
|               |           |         |                | 500~1000         | 800.00      | -79.99       | ≤-54        | 0.01002     | ≤4         | PASS    |
|               |           |         |                | 1000~12500       | 3841.08     | -63.06       | ≤-47        | 0.49431     | ≤20        | PASS    |
|               |           |         | 2472           | 30~500           | 159.96      | -69.03       | ≤-54        | 0.12503     | ≤4         | PASS    |
|               |           |         |                | 500~1000         | 640.00      | -80.94       | ≤-54        | 0.00805     | ≤4         | PASS    |
|               |           |         |                | 1000~12500       | 3852.00     | -63.06       | ≤-47        | 0.49431     | ≤20        | PASS    |
|               | 11N40SISO | Ant1    | 2422           | 30~500           | 159.96      | -68.80       | ≤-54        | 0.13183     | ≤4         | PASS    |
|               |           |         |                | 500~1000         | 942.25      | -80.81       | ≤-54        | 0.00830     | ≤4         | PASS    |
|               |           |         |                | 1000~12500       | 3806.58     | -63.51       | ≤-47        | 0.44566     | ≤20        | PASS    |
|               |           |         | 2442           | 30~500           | 159.96      | -69.15       | ≤-54        | 0.12162     | ≤4         | PASS    |
|               |           |         |                | 500~1000         | 866.75      | -80.80       | ≤-54        | 0.00832     | ≤4         | PASS    |
|               |           |         |                | 1000~12500       | 3774.95     | -64.31       | ≤-47        | 0.37068     | ≤20        | PASS    |
|               |           |         | 2462           | 30~500           | 159.96      | -69.17       | ≤-54        | 0.12106     | ≤4         | PASS    |
|               |           |         |                | 500~1000         | 640.00      | -82.38       | ≤-54        | 0.00578     | ≤4         | PASS    |
|               |           |         |                | 1000~12500       | 3772.08     | -65.44       | ≤-47        | 0.28576     | ≤20        | PASS    |
| NTLV          | 11B       | Ant1    | 2412           | 30~500           | 159.96      | -68.95       | ≤-54        | 0.12735     | ≤4         | PASS    |
|               |           |         |                | 500~1000         | 903.75      | -81.42       | ≤-54        | 0.00721     | ≤4         | PASS    |
|               |           |         |                | 1000~12500       | 3732.40     | -62.11       | ≤-47        | 0.61518     | ≤20        | PASS    |
|               |           |         | 2442           | 30~500           | 159.96      | -68.93       | ≤-54        | 0.12794     | ≤4         | PASS    |
|               |           |         |                | 500~1000         | 835.50      | -81.08       | ≤-54        | 0.00780     | ≤4         | PASS    |
|               |           |         |                | 1000~12500       | 3803.13     | -63.28       | ≤-47        | 0.46989     | ≤20        | PASS    |
|               |           |         | 2472           | 30~500           | 159.96      | -68.45       | ≤-54        | 0.14289     | ≤4         | PASS    |
|               |           |         |                | 500~1000         | 871.75      | -81.01       | ≤-54        | 0.00793     | ≤4         | PASS    |
|               |           |         |                | 1000~12500       | 3826.70     | -62.57       | ≤-47        | 0.55335     | ≤20        | PASS    |
|               | 11G       | Ant1    | 2412           | 30~500           | 159.96      | -68.76       | ≤-54        | 0.13305     | ≤4         | PASS    |
|               |           |         |                | 500~1000         | 897.25      | -80.21       | ≤-54        | 0.00953     | ≤4         | PASS    |
|               |           |         |                | 1000~12500       | 3876.73     | -63.11       | ≤-47        | 0.48865     | ≤20        | PASS    |
|               |           |         | 2442           | 30~500           | 159.96      | -68.79       | ≤-54        | 0.13213     | ≤4         | PASS    |
|               |           |         |                | 500~1000         | 800.00      | -81.55       | ≤-54        | 0.00700     | ≤4         | PASS    |
|               |           |         |                | 1000~12500       | 3904.33     | -63.31       | ≤-47        | 0.46666     | ≤20        | PASS    |
|               |           |         | 2472           | 30~500           | 159.96      | -68.64       | ≤-54        | 0.13677     | ≤4         | PASS    |
|               |           |         |                | 500~1000         | 812.75      | -80.56       | ≤-54        | 0.00879     | ≤4         | PASS    |
|               |           |         |                | 1000~12500       | 2420.83     | -62.10       | ≤-47        | 0.61660     | ≤20        | PASS    |
|               | 11N20SISO | Ant1    | 2412           | 30~500           | 159.96      | -68.89       | ≤-54        | 0.12912     | ≤4         | PASS    |
|               |           |         |                | 500~1000         | 787.75      | -80.52       | ≤-54        | 0.00887     | ≤4         | PASS    |
|               |           |         |                | 1000~12500       | 5741.45     | -59.57       | ≤-47        | 1.10408     | ≤20        | PASS    |
|               |           |         | 2442           | 30~500           | 159.96      | -68.48       | ≤-54        | 0.14191     | ≤4         | PASS    |
|               |           |         |                | 500~1000         | 874.75      | -81.26       | ≤-54        | 0.00748     | ≤4         | PASS    |
|               |           |         |                | 1000~12500       | 3811.18     | -62.22       | ≤-47        | 0.59979     | ≤20        | PASS    |
|               |           |         | 2472           | 30~500           | 159.96      | -68.63       | ≤-54        | 0.13709     | ≤4         | PASS    |
|               |           |         |                | 500~1000         | 804.50      | -80.80       | ≤-54        | 0.00832     | ≤4         | PASS    |
|               |           |         |                | 1000~12500       | 2448.43     | -60.48       | ≤-47        | 0.89536     | ≤20        | PASS    |
|               | 11N40SISO | Ant1    | 2422           | 30~500           | 159.96      | -68.97       | ≤-54        | 0.12677     | ≤4         | PASS    |
|               |           |         |                | 500~1000         | 881.50      | -81.02       | ≤-54        | 0.00791     | ≤4         | PASS    |
|               |           |         |                | 1000~12500       | 3833.03     | -63.13       | ≤-47        | 0.48641     | ≤20        | PASS    |
|               |           |         | 2442           | 30~500           | 159.96      | -69.20       | ≤-54        | 0.12023     | ≤4         | PASS    |
|               |           |         |                | 500~1000         | 774.50      | -81.62       | ≤-54        | 0.00689     | ≤4         | PASS    |
|               |           |         |                | 1000~12500       | 2460.50     | -61.69       | ≤-47        | 0.67764     | ≤20        | PASS    |
|               |           |         | 2462           | 30~500           | 159.96      | -69.16       | ≤-54        | 0.12134     | ≤4         | PASS    |
|               |           |         |                | 500~1000         | 640.00      | -81.70       | ≤-54        | 0.00676     | ≤4         | PASS    |
|               |           |         |                | 1000~12500       | 3766.33     | -64.51       | ≤-47        | 0.35400     | ≤20        | PASS    |
| NTHV          | 11B       | Ant1    | 2412           | 30~500           | 159.96      | -68.85       | ≤-54        | 0.13032     | ≤4         | PASS    |
|               |           |         |                | 500~1000         | 815.25      | -80.86       | ≤-54        | 0.00820     | ≤4         | PASS    |
|               |           |         |                | 1000~12500       | 3779.55     | -62.73       | ≤-47        | 0.53333     | ≤20        | PASS    |
|               |           |         | 2442           | 30~500           | 159.96      | -69.01       | ≤-54        | 0.12560     | ≤4         | PASS    |
|               |           |         |                | 500~1000         | 811.75      | -81.11       | ≤-54        | 0.00774     | ≤4         | PASS    |
|               |           |         |                | 1000~12500       | 3760.00     | -63.36       | ≤-47        | 0.46132     | ≤20        | PASS    |
|               |           |         | 2472           | 30~500           | 159.96      | -68.82       | ≤-54        | 0.13122     | ≤4         | PASS    |
|               |           |         |                | 500~1000         | 720.00      | -81.06       | ≤-54        | 0.00783     | ≤4         | PASS    |
|               |           |         |                | 1000~12500       | 3872.13     | -63.22       | ≤-47        | 0.47643     | ≤20        | PASS    |
|               | 11G       | Ant1    | 2412           | 30~500           | 159.96      | -68.72       | ≤-54        | 0.13428     | ≤4         | PASS    |
|               |           |         |                | 500~1000         | 868.50      | -81.22       | ≤-54        | 0.00755     | ≤4         | PASS    |
|               |           |         |                | 1000~12500       | 3800.83     | -63.61       | ≤-47        | 0.43551     | ≤20        | PASS    |
|               |           |         | 2442           | 30~500           | 159.96      | -68.78       | ≤-54        | 0.13243     | ≤4         | PASS    |

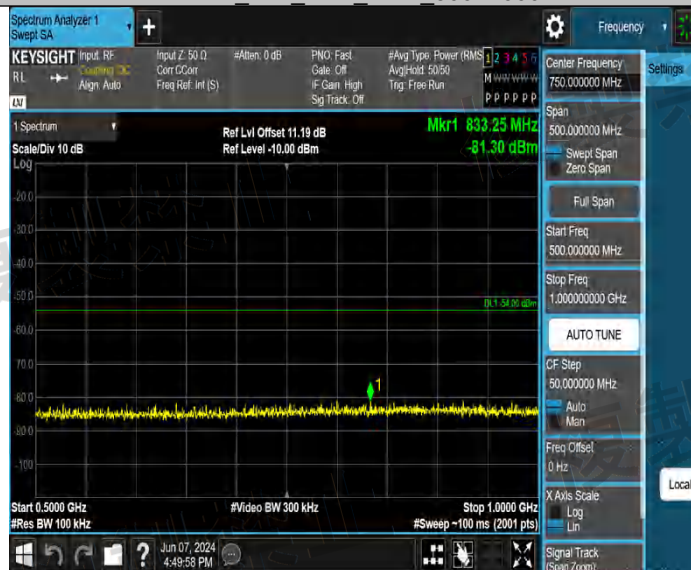


|  |           |      |      |            |         |        |      |         |     |      |
|--|-----------|------|------|------------|---------|--------|------|---------|-----|------|
|  | 11N20SISO | Ant1 | 2472 | 500~1000   | 868.50  | -81.65 | ≤-54 | 0.00684 | ≤4  | PASS |
|  |           |      |      | 1000~12500 | 3801.40 | -62.75 | ≤-47 | 0.53088 | ≤20 | PASS |
|  |           |      |      | 30~500     | 159.96  | -68.57 | ≤-54 | 0.13900 | ≤4  | PASS |
|  |           |      |      | 500~1000   | 720.00  | -81.04 | ≤-54 | 0.00787 | ≤4  | PASS |
|  |           |      |      | 1000~12500 | 3833.03 | -62.49 | ≤-47 | 0.56364 | ≤20 | PASS |
|  |           |      |      | 30~500     | 159.96  | -69.01 | ≤-54 | 0.12560 | ≤4  | PASS |
|  |           |      | 2412 | 500~1000   | 862.75  | -81.38 | ≤-54 | 0.00728 | ≤4  | PASS |
|  |           |      |      | 1000~12500 | 3785.88 | -63.44 | ≤-47 | 0.45290 | ≤20 | PASS |
|  |           |      |      | 30~500     | 159.96  | -68.69 | ≤-54 | 0.13521 | ≤4  | PASS |
|  |           |      |      | 500~1000   | 843.25  | -81.36 | ≤-54 | 0.00731 | ≤4  | PASS |
|  |           |      |      | 1000~12500 | 3850.28 | -62.99 | ≤-47 | 0.50234 | ≤20 | PASS |
|  |           |      |      | 30~500     | 159.96  | -68.93 | ≤-54 | 0.12794 | ≤4  | PASS |
|  | 11N40SISO | Ant1 | 2472 | 500~1000   | 829.00  | -81.64 | ≤-54 | 0.00685 | ≤4  | PASS |
|  |           |      |      | 1000~12500 | 3742.75 | -63.89 | ≤-47 | 0.40832 | ≤20 | PASS |
|  |           |      |      | 30~500     | 159.96  | -68.77 | ≤-54 | 0.13274 | ≤4  | PASS |
|  |           |      |      | 500~1000   | 989.00  | -81.28 | ≤-54 | 0.00745 | ≤4  | PASS |
|  |           |      |      | 1000~12500 | 3786.45 | -62.80 | ≤-47 | 0.52481 | ≤20 | PASS |
|  |           |      |      | 30~500     | 159.96  | -69.45 | ≤-54 | 0.11350 | ≤4  | PASS |
|  |           |      | 2442 | 500~1000   | 931.50  | -81.18 | ≤-54 | 0.00762 | ≤4  | PASS |
|  |           |      |      | 1000~12500 | 3811.18 | -65.22 | ≤-47 | 0.30061 | ≤20 | PASS |
|  |           |      |      | 30~500     | 159.96  | -69.06 | ≤-54 | 0.12417 | ≤4  | PASS |
|  |           |      |      | 500~1000   | 800.00  | -81.79 | ≤-54 | 0.00662 | ≤4  | PASS |
|  |           |      |      | 1000~12500 | 3723.20 | -63.78 | ≤-47 | 0.41879 | ≤20 | PASS |
|  |           |      |      | 30~500     | 159.96  | -68.57 | ≤-54 | 0.13900 | ≤4  | PASS |

## NTNV 11B Ant1 2412 30~500



## NTNV 11B Ant1 2412 500~1000



## NTNV 11B Ant1 2412 1000~12500











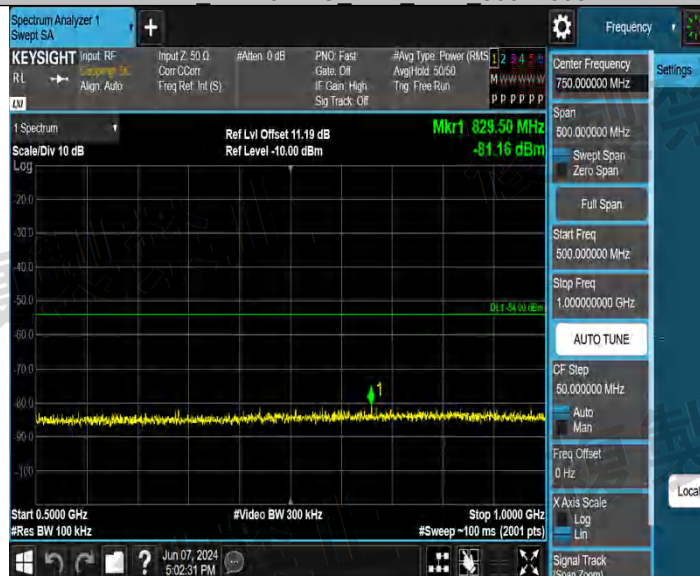




NTNV 11N20SISO\_Ant1\_2412\_30~500



NTNV 11N20SISO\_Ant1\_2412\_500~1000

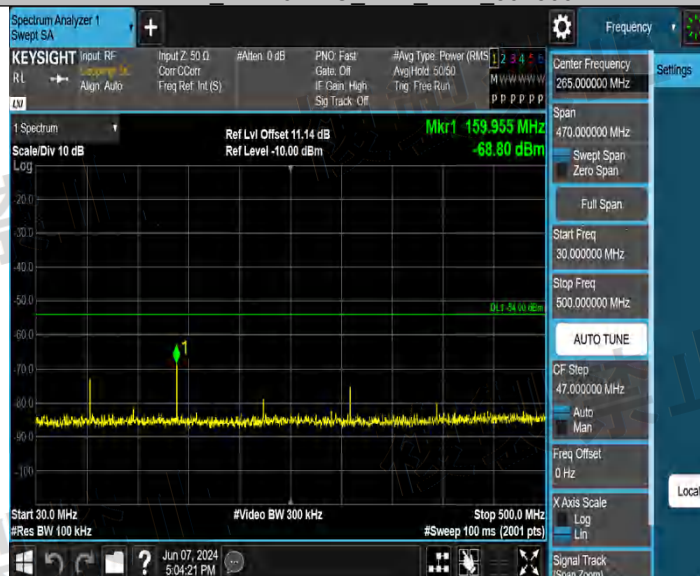


NTNV 11N20SISO\_Ant1\_2412\_1000~12500

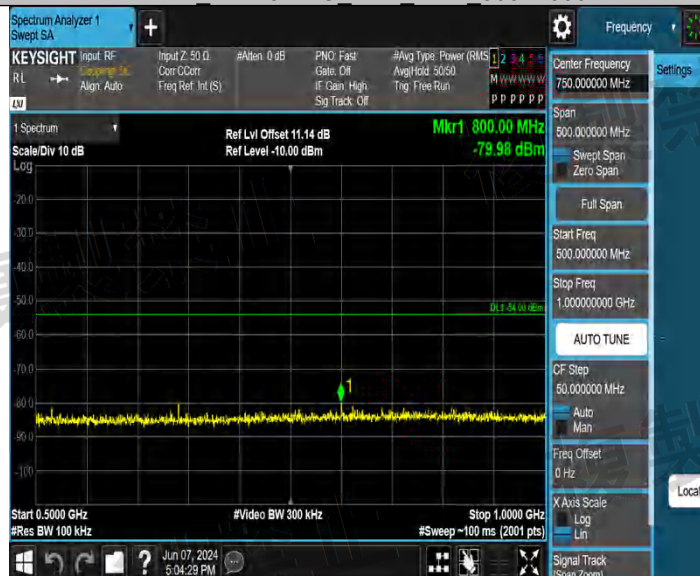




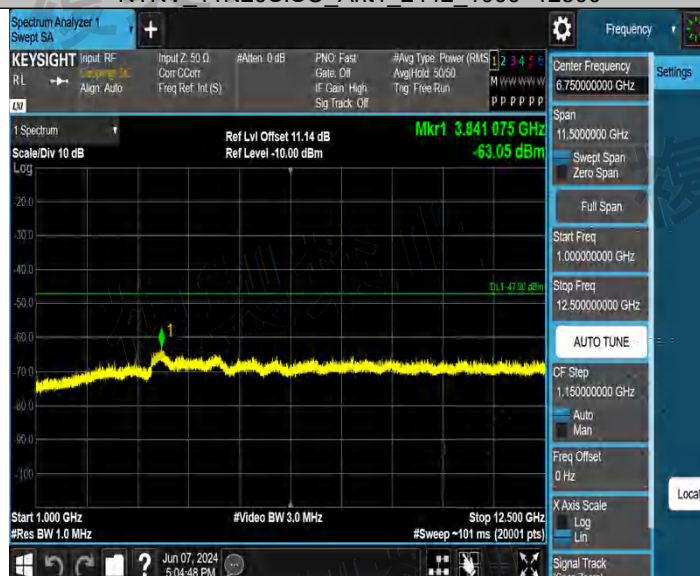
## NTNV 11N20SISO\_Ant1\_2442 30~500



## NTNV 11N20SISO\_Ant1\_2442 500~1000



## NTNV 11N20SISO\_Ant1\_2442 1000~12500

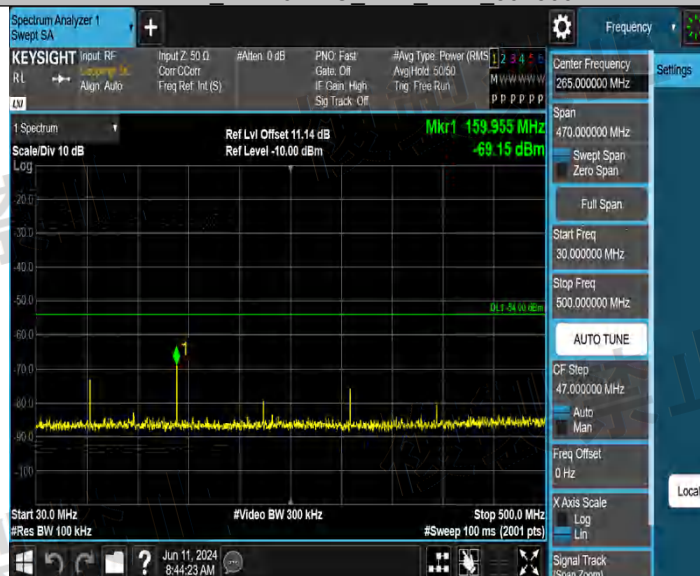




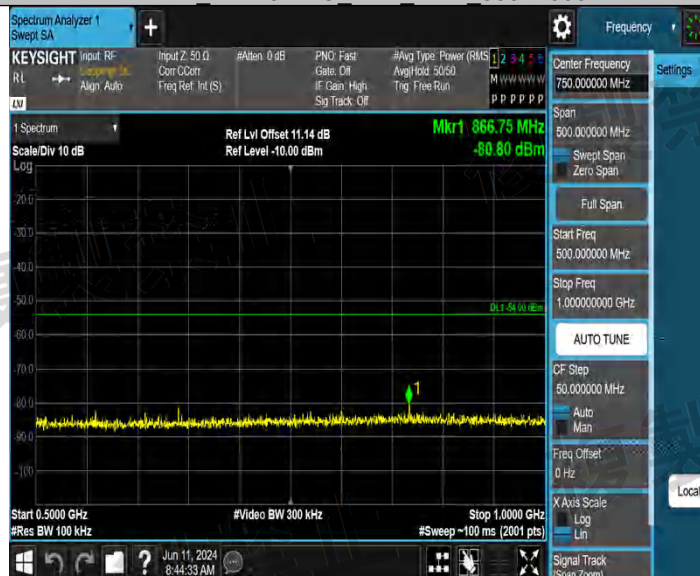




## NTNV 11N40SISO\_Ant1\_2442 30~500



## NTNV 11N40SISO\_Ant1\_2442 500~1000

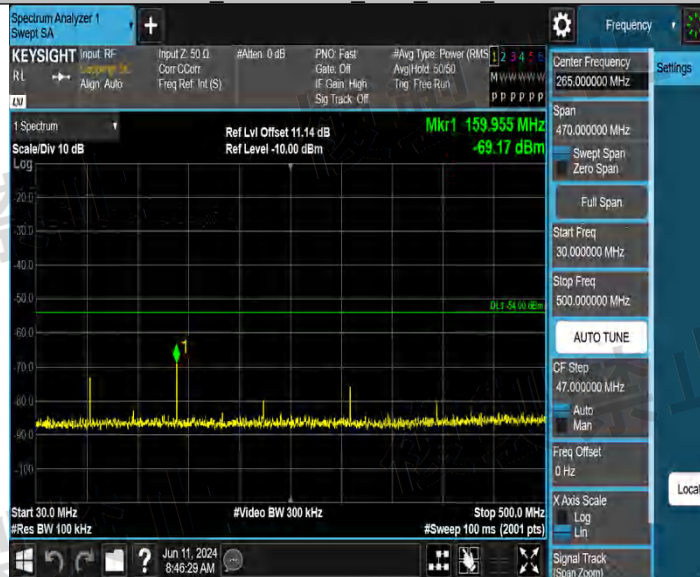


## NTNV 11N40SISO\_Ant1\_2442 1000~12500

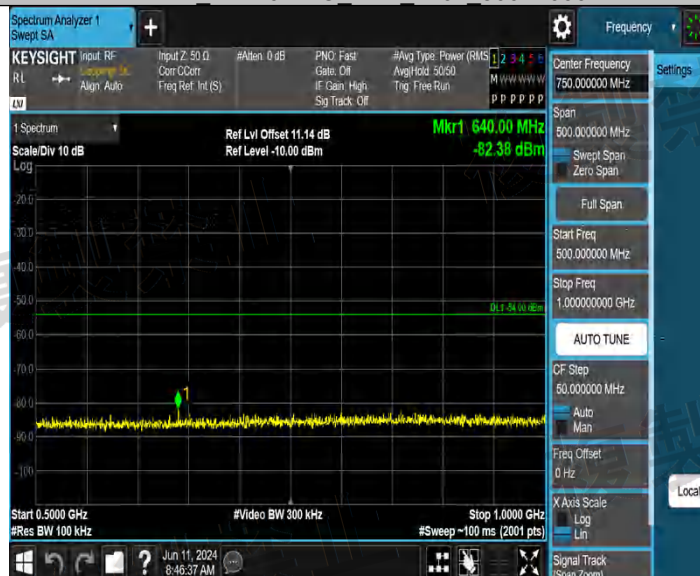




NTNV 11N40SISO\_Ant1\_2462 30~500



NTNV 11N40SISO\_Ant1\_2462 500~1000



NTNV 11N40SISO\_Ant1\_2462 1000~12500









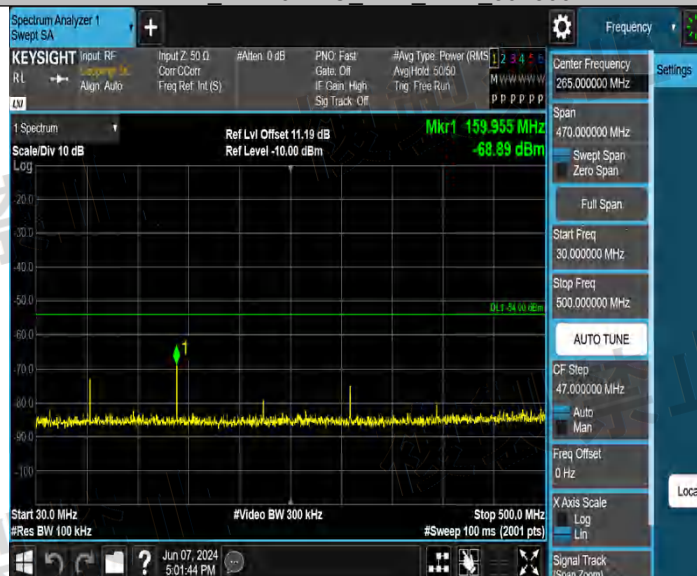




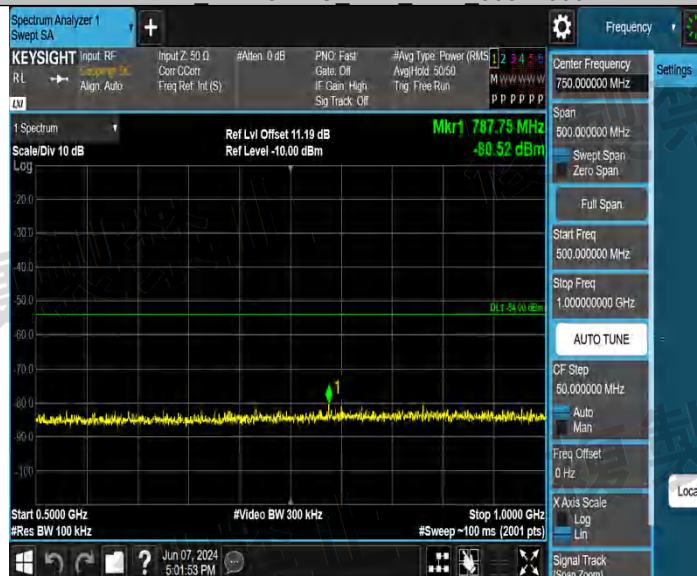




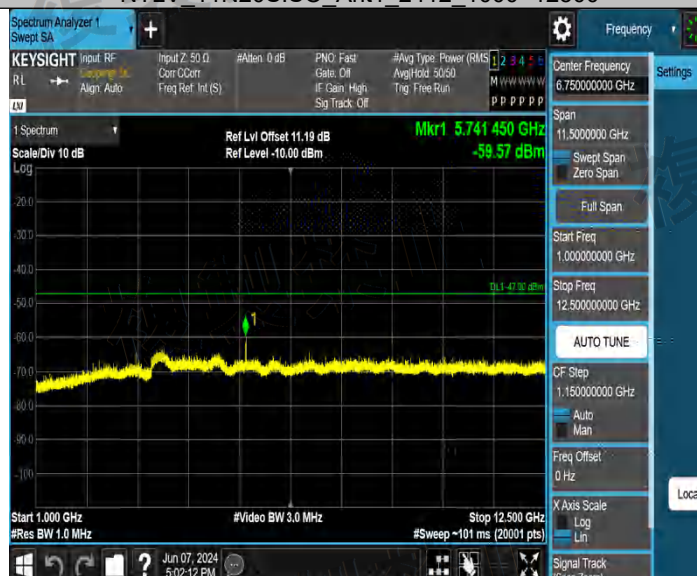
## NTLV 11N20SISO\_Ant1 2412 30~500



## NTLV 11N20SISO\_Ant1 2412 500~1000



## NTLV 11N20SISO\_Ant1 2412 1000~12500

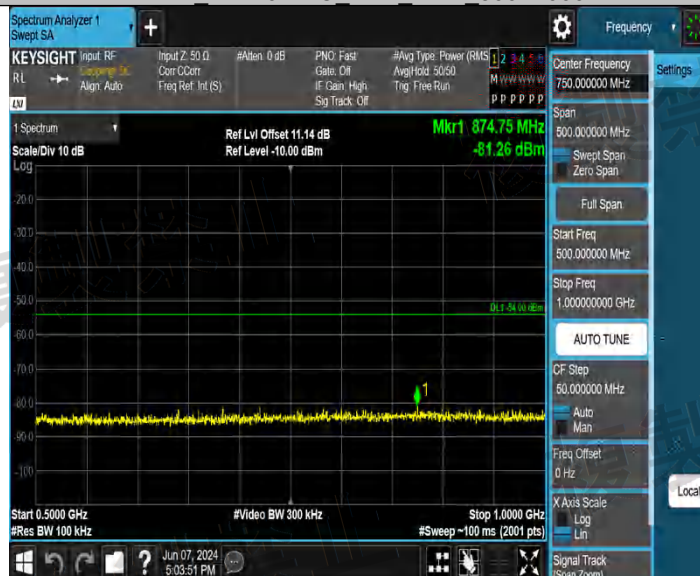




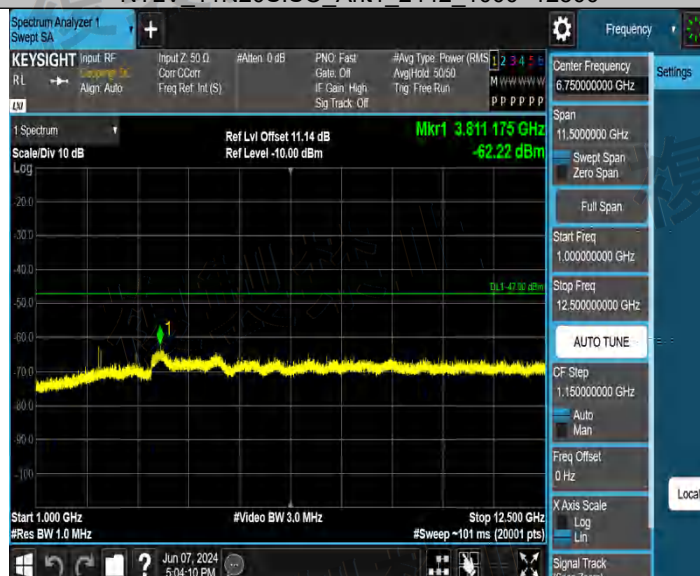
## NTLV 11N20SISO\_Ant1 2442 30~500



## NTLV 11N20SISO\_Ant1 2442 500~1000



## NTLV 11N20SISO\_Ant1 2442 1000~12500



## NTLV 11N20SISO\_Ant1 2472 30~500

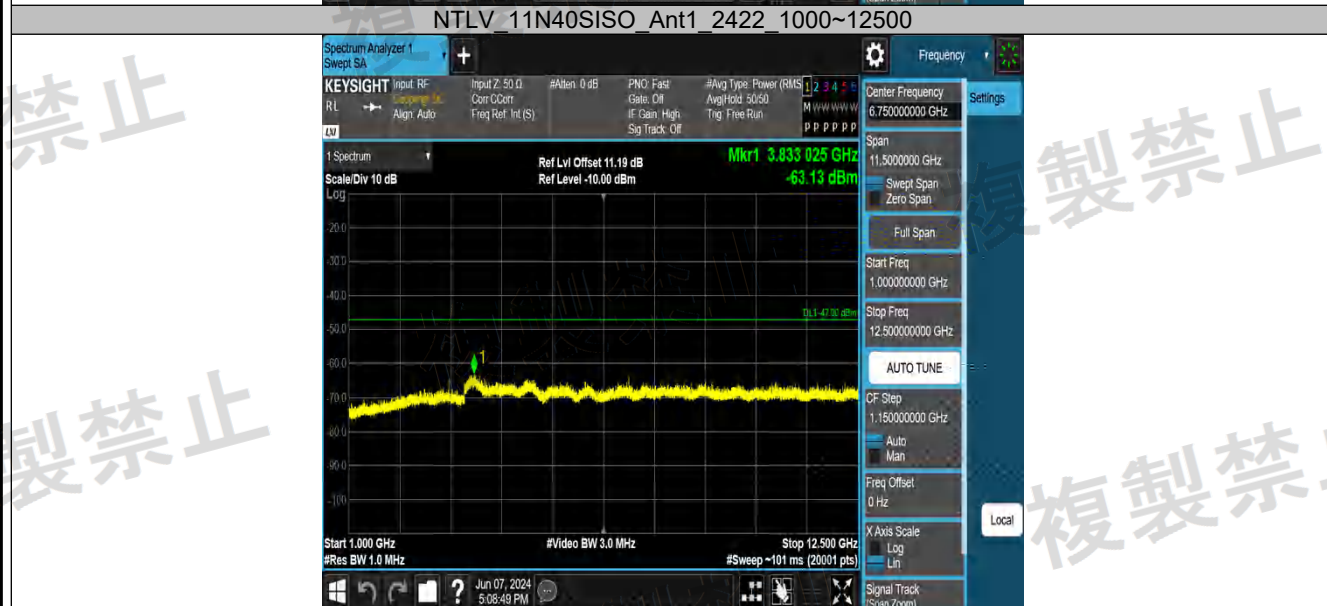
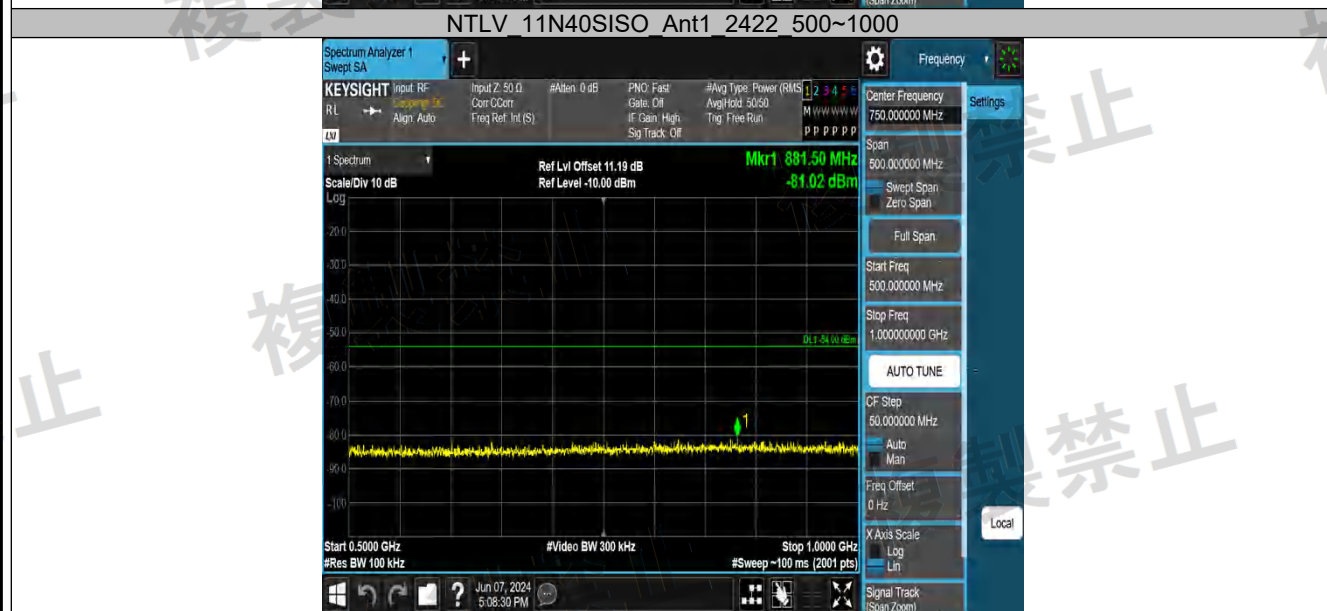
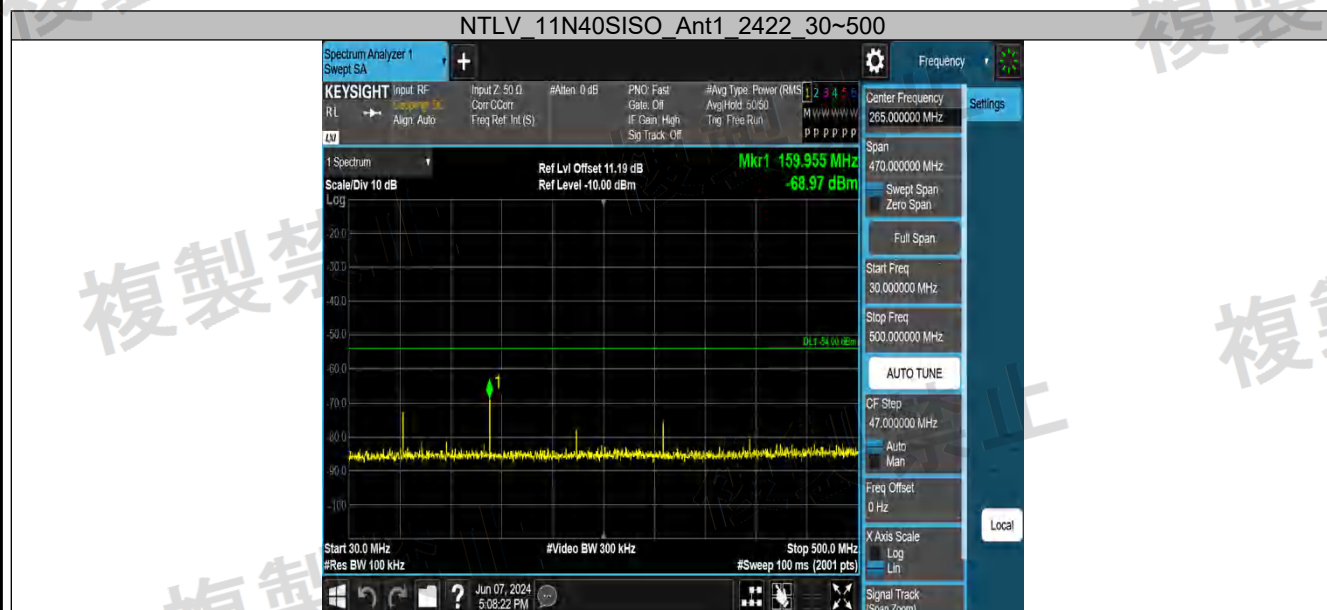


## NTLV 11N20SISO\_Ant1 2472 500~1000



## NTLV 11N20SISO\_Ant1 2472 1000~12500

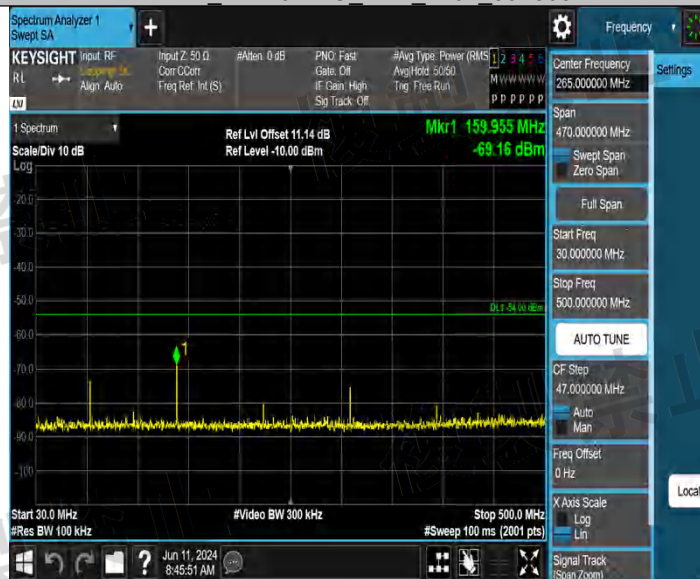




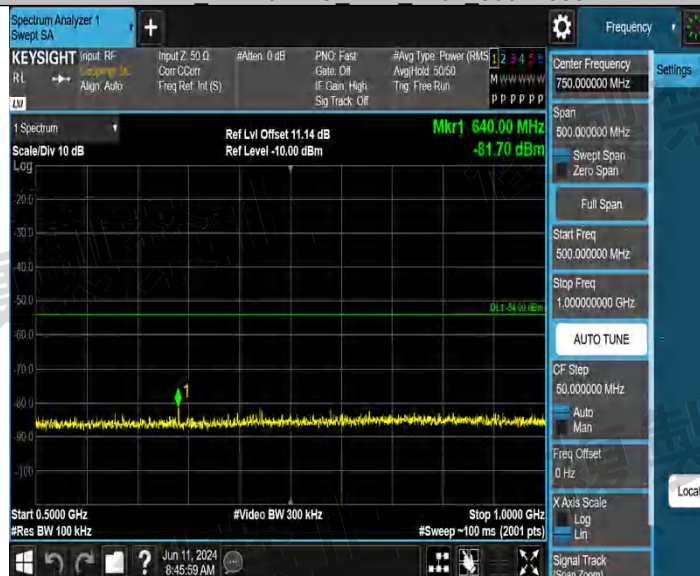




## NTLV 11N40SISO\_Ant1 2462 30~500



## NTLV 11N40SISO\_Ant1 2462 500~1000



## NTLV 11N40SISO\_Ant1 2462 1000~12500





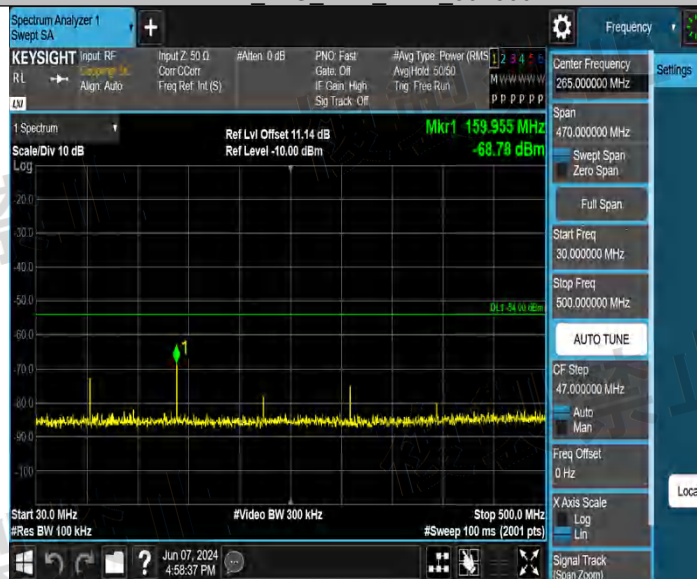








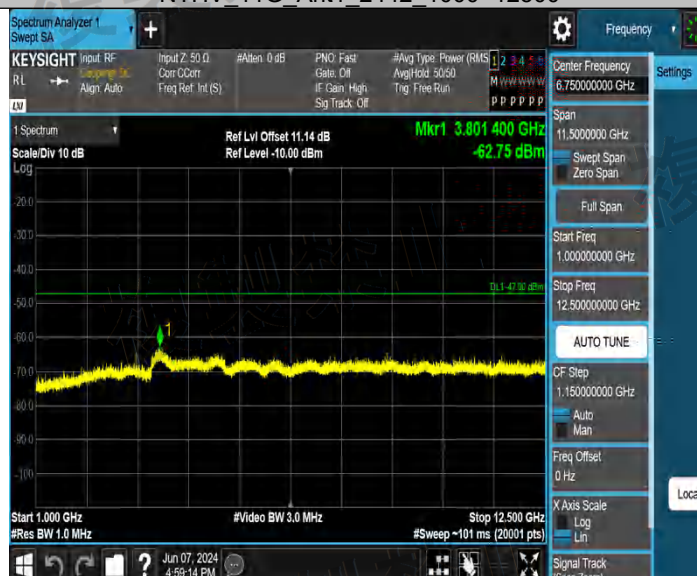
NTHV\_11G\_Ant1\_2442\_30~500



NTHV\_11G\_Ant1\_2442\_500~1000



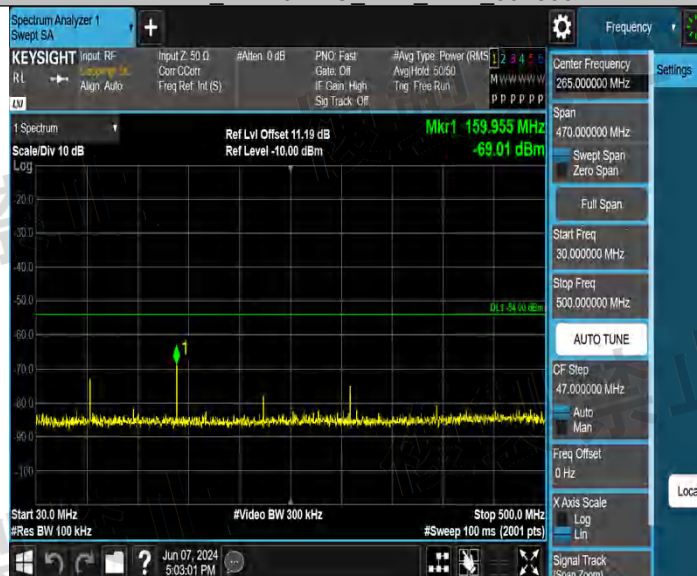
NTHV\_11G\_Ant1\_2442\_1000~12500



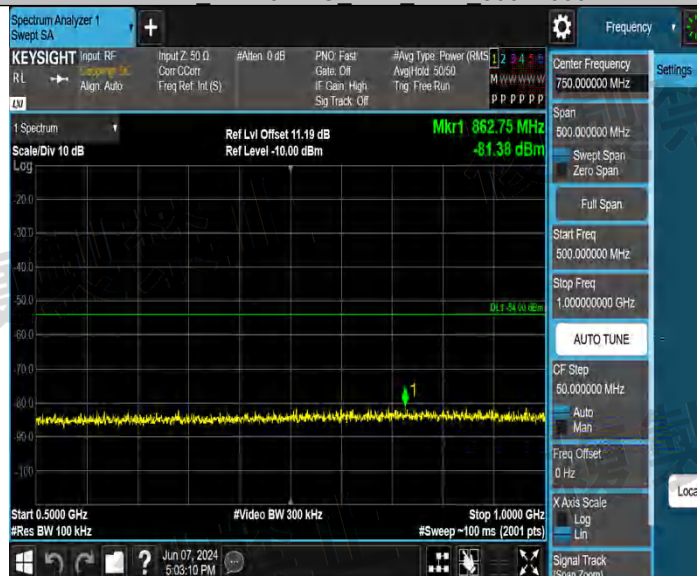




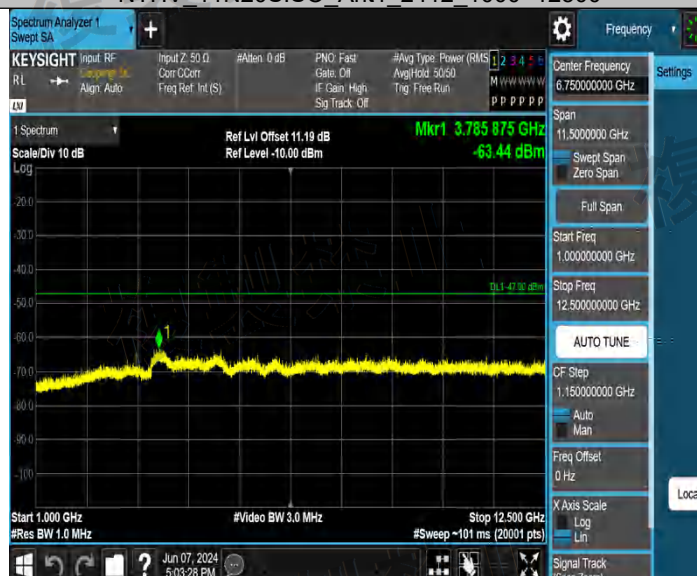
NTHV 11N20SISO\_Ant1\_2412 30~500



NTHV 11N20SISO\_Ant1\_2412 500~1000

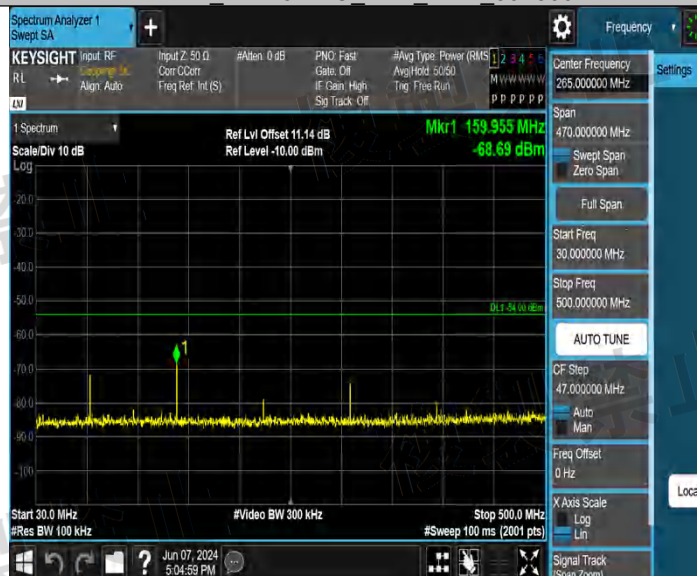


NTHV 11N20SISO\_Ant1\_2412 1000~12500

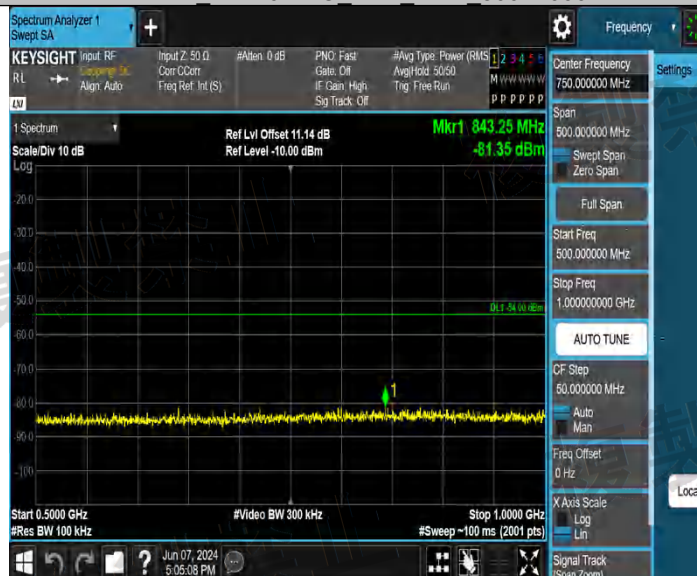




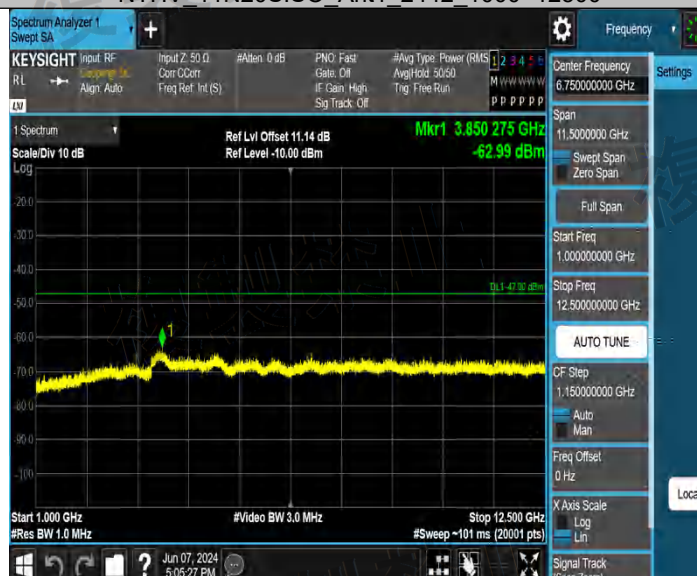
NTHV 11N20SISO\_Ant1\_2442 30~500



NTHV 11N20SISO\_Ant1\_2442 500~1000



NTHV 11N20SISO\_Ant1\_2442 1000~12500



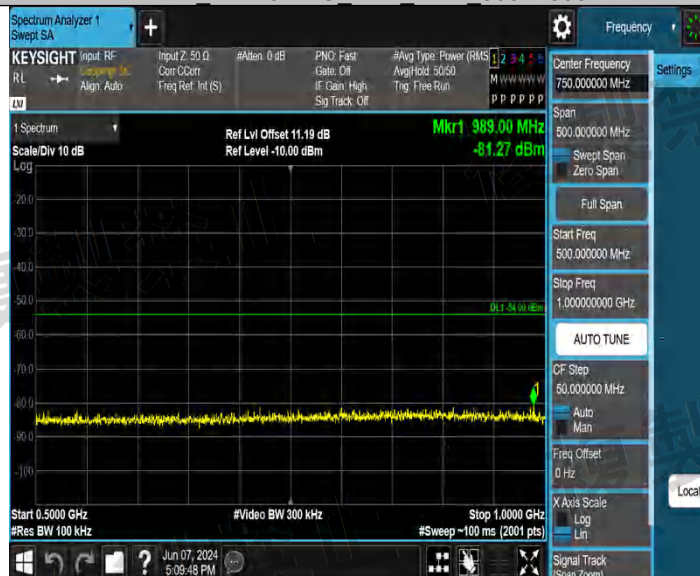




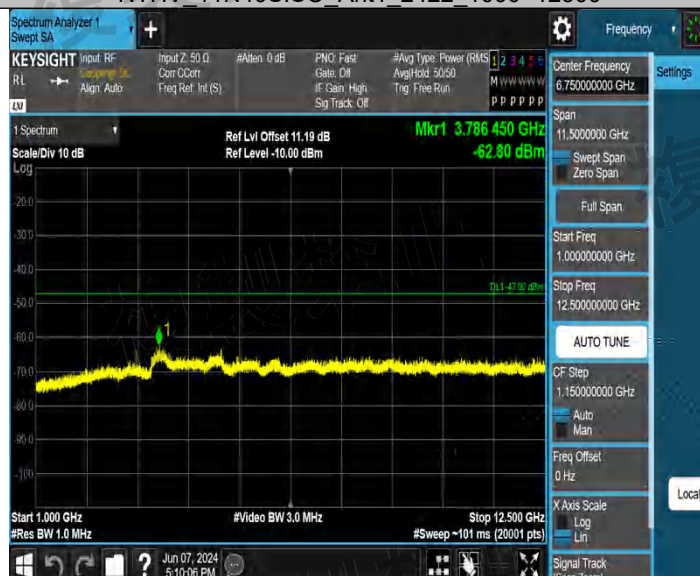
NTHV 11N40SISO\_Ant1\_2422 30~500



NTHV 11N40SISO\_Ant1\_2422 500~1000



NTHV 11N40SISO\_Ant1\_2422 1000~12500





NTHV 11N40SISO\_Ant1\_2442 30~500



NTHV 11N40SISO\_Ant1\_2442 500~1000

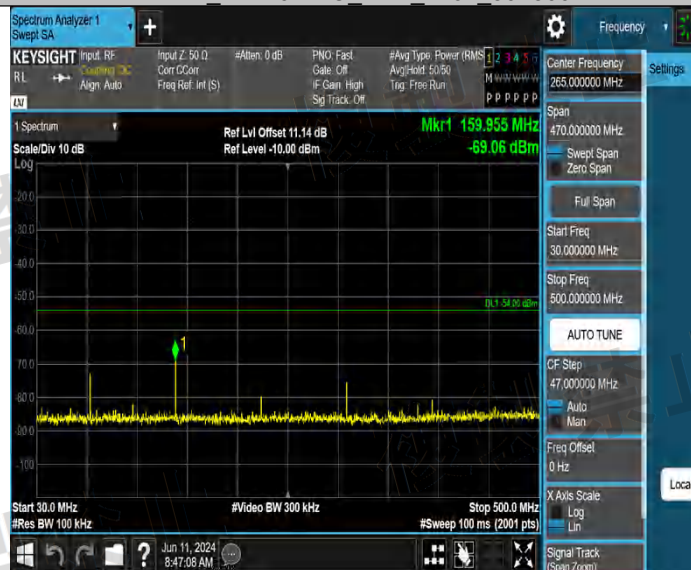


NTHV 11N40SISO\_Ant1\_2442 1000~12500





NTHV 11N40SISO Ant1 2462 30~500



NTHV 11N40SISO Ant1 2462 500~1000



NTHV 11N40SISO Ant1 2462 1000~12500





## Appendix A.7: Test Results of Carrier Sensing

| Frequency | Antenna Gain (dBi) | Extra Cable Loss [dB] | Limit [dBm] | Attenuation [dB] | SG setting for test [dBm] | Detection Level [dBm] | Result |
|-----------|--------------------|-----------------------|-------------|------------------|---------------------------|-----------------------|--------|
| 2442      | 2.27               | 1.5                   | -42.69      | 6                | -36.69                    | Less than -42.73      | Pass   |

